

**Request for an Incidental Harassment Authorization  
under the Marine Mammal Protection Act**

**Seattle Ferry Terminal at Colman Dock  
Slip 3 Vehicle Transfer Span Replacement Project**

**Washington State Department of Transportation  
Ferries Division**

**May 13, 2024**



**Submitted To:**

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Cover: California Sea Lion hauled out on Colman construction platform (WSDOT 2018).

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## Abbreviations and Acronyms

BMP	best management practices
CA-OR-WA	California-Oregon-Washington
CFR	Code of Federal Regulations
dB	decibels
DPS	Distinct Population Segment
DPS	dynamic positioning system
Ecology	Washington State Department of Ecology
ESA	Endangered Species Act
FHWA	Federal Highway Administration
FR	Federal Register
FTA	Federal Transit Administration
HPA	Hydraulic Project Approval
Hz	hertz
IHA	Incidental Harassment Authorization
IWC	International Whaling Commission
kHz	kilohertz
kJ	kilojoules(s)
km	kilometer(s)
m	meters
MATLAB	matrix laboratory
MLLW	Mean Low-Low Water
MHHW	Mean High-High Water
MM	mitigation measure
MMPA	Marine Mammal Protection Act of 1972
NMFS	National Marine Fisheries Service
NMML	National Marine Mammal Laboratory
NOAA	National Oceanographic Atmospheric Administration



NOAA/NMFS	National Oceanic Atmospheric Administration/National Marine Fisheries Service
NTU	nephelometric turbidity units
OHW	ordinary high water
OWC	overwater coverage
PSAMP	Puget Sound Ambient Monitoring Program
PSD	power spectral densities
PTS	permanent threshold shift
RCW	Revised Code of Washington
RL	Received Level
RMS	root mean square
SAR	Stock Assessment Report
SEL	Sound Exposure Level
SL	Source Level
SPCC	Spill Prevention, Control, and Countermeasures Plan
SPL	Sound Pressure Level
SSV	Sound Source Verification
TL	Transmission Loss
TTS	Temporary Threshold Shift
μPa	micro-Pascals
USFWS	United States Fish and Wildlife Service
WAC	Washington Administrative Code
WDFW	Washington Department of Fish and Wildlife
WSDOT	Washington State Department of Transportation
WSF	Washington State Department of Transportation Ferries Division
ZOE	Zone of Exclusion
ZOI	Zone of Influence





# 1.0 Description of the Activity

*A detailed description of the specific activity or class of activities that can be expected to result in incidental taking of marine mammals.*

## 1.1 Introduction

The Washington State Department of Transportation (WSDOT) Ferries Division (WSF) operates and maintains 19 ferry terminals and one maintenance facility, all of which are located in the Salish Sea (Georgia Basin/Puget Sound) (Figure 1-1). Since its creation in 1951, WSF has



**Figure 1-1 Washington State Ferry System Route Map**

become the largest ferry system in the United States, operating 21 vessels on 10 routes with over 500 sailings each day.

To improve, maintain, and preserve the terminals, WSF conducts construction, repair and maintenance activities as part of its regular operations. One of these projects is the Seattle Ferry Terminal Slip 3 Vehicle Transfer Span (VTS) Project and is the subject of this Incidental Harassment Authorization (IHA) request. This project is scheduled for the August to February 2024-2025 in-water work window.

The project will occur in marine waters that support marine mammal species. The Marine Mammal Protection Act of 1972 (MMPA) prohibits the taking of marine mammals, which is defined as to “harass, hunt, capture or kill, or attempt to harass, hunt, capture or kill,” except under certain situations. Section 101 (a) (5)(D) allows for the issuance of an IHA, provided the activity results in negligible impacts on marine mammals.

The project’s timing and duration and specific types of activities may result in the incidental taking by acoustical harassment (Level B take) of marine mammals protected under the MMPA. WSDOT/WSF is requesting an IHA for 12 marine mammal species (Pacific harbor seal, Northern Elephant seal, California sea lion, Steller sea lion, Transient killer whale, Gray whale, Minke whale, Harbor porpoise, Dall’s porpoise, Common Bottlenose dolphin, Pacific White-sided dolphin and Long-beaked common dolphin) that may occur in the project vicinity.

## **1.2 Project Setting and Land Use**

The Seattle Ferry Terminal at Colman Dock, serving State Route 519, is located on the downtown Seattle waterfront, in King County, Washington. The terminal services vessels from the Bainbridge Island and Bremerton routes and is the most heavily used terminal in the WSF system. The Seattle terminal is in Section 6, Township 24 North, Range 4 East, and is on the Elliott Bay shoreline, part of Puget Sound (Figure 1-2). Slip 3 is presented in Figure 1-3. Land use in the area is highly urban, and includes business, industrial, the Port of Seattle container loading facility, residential, the Pioneer Square Historic District and local parks.

## **1.3 Project Description**

The purpose of the Slip 3 VTS Project is to preserve the transportation function of an aging, seismically deficient transfer span. The existing VTS towers will be replaced with a hydraulic transfer span with drilled shaft foundations. An end batter pile will also be replaced on the left wingwall. Project sheets are provided in Appendix A. Key project elements include:

- 16-14” existing tower steel H-piles will be removed with a vibratory hammer,
- 12-24” steel temporary piles will be installed with a vibratory hammer, proofed with an impact hammer (in order to confirm load bearing capacity so a safe work platform can be constructed on top of the piles), then removed with a vibratory hammer when construction is complete,
- 2-78” steel drilled shafts will be installed with a vibratory hammer,
- 1-14” concrete-filled wingwall pile will be cut below the mudline (no vibratory hammer will be used), and
- 1-30” steel wingwall pile will be installed with a vibratory hammer.

## **1.4 Regulatory Background**

The effects of the project were analyzed as part of the Seattle Multimodal Project, pursuant to the National Environmental Policy Act. The federal co-lead agencies, the Federal Transit Administration (FTA) and the Federal Highway Administration (FHWA), issued a finding of no significant impact (FONSI) on November 5, 2015.

During the NEPA process, the project underwent formal Endangered Species Act (ESA) consultation with National Oceanographic and Atmospheric Administration (NOAA) Fisheries and the U.S. Fish and Wildlife Service (USFWS). NOAA Fisheries issued a Biological Opinion on March 20, 2014 and USFWS issued a Biological Opinion on February 18, 2014.

A re-initiation of the project due to construction changes was completed in 2017. USFWS issued a Biological Opinion (01EWF00-2013-F0262R001 X-Ref: O1EWF00-2013-F-0262) on June 14, 2017 (USFW 2017), and NMFS issued a Biological Opinion (WCR-2016-5803) on June 26, 2017 (NMFS 2017a).

A re-initiation for Humpback whale was completed on October 1, 2018 (Biological Opinion WCR-2016-5803) (NMFS 2018a). Four IHAs (2017-2022) were issued for this project.

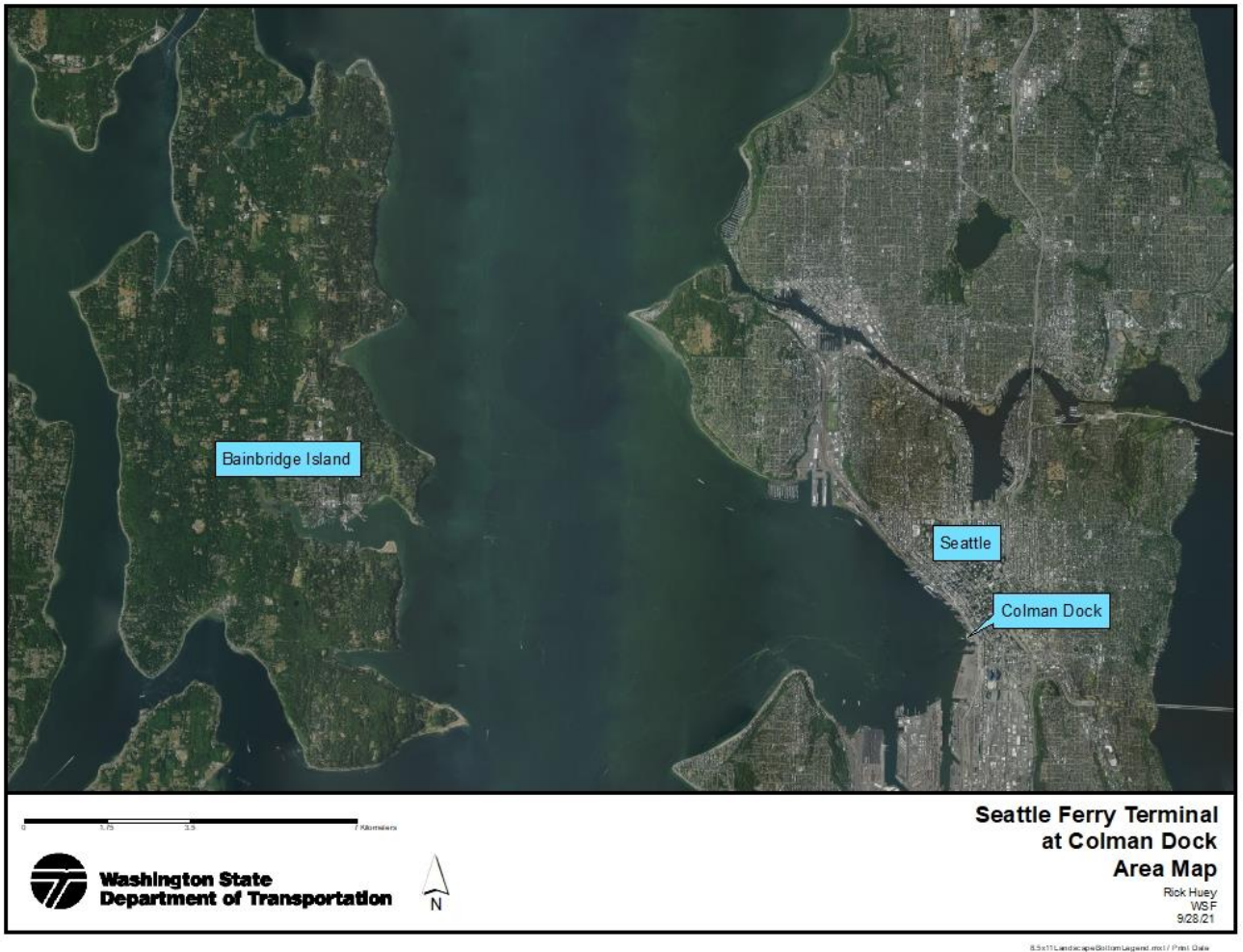


Figure 1-2 Location of Seattle Ferry Terminal

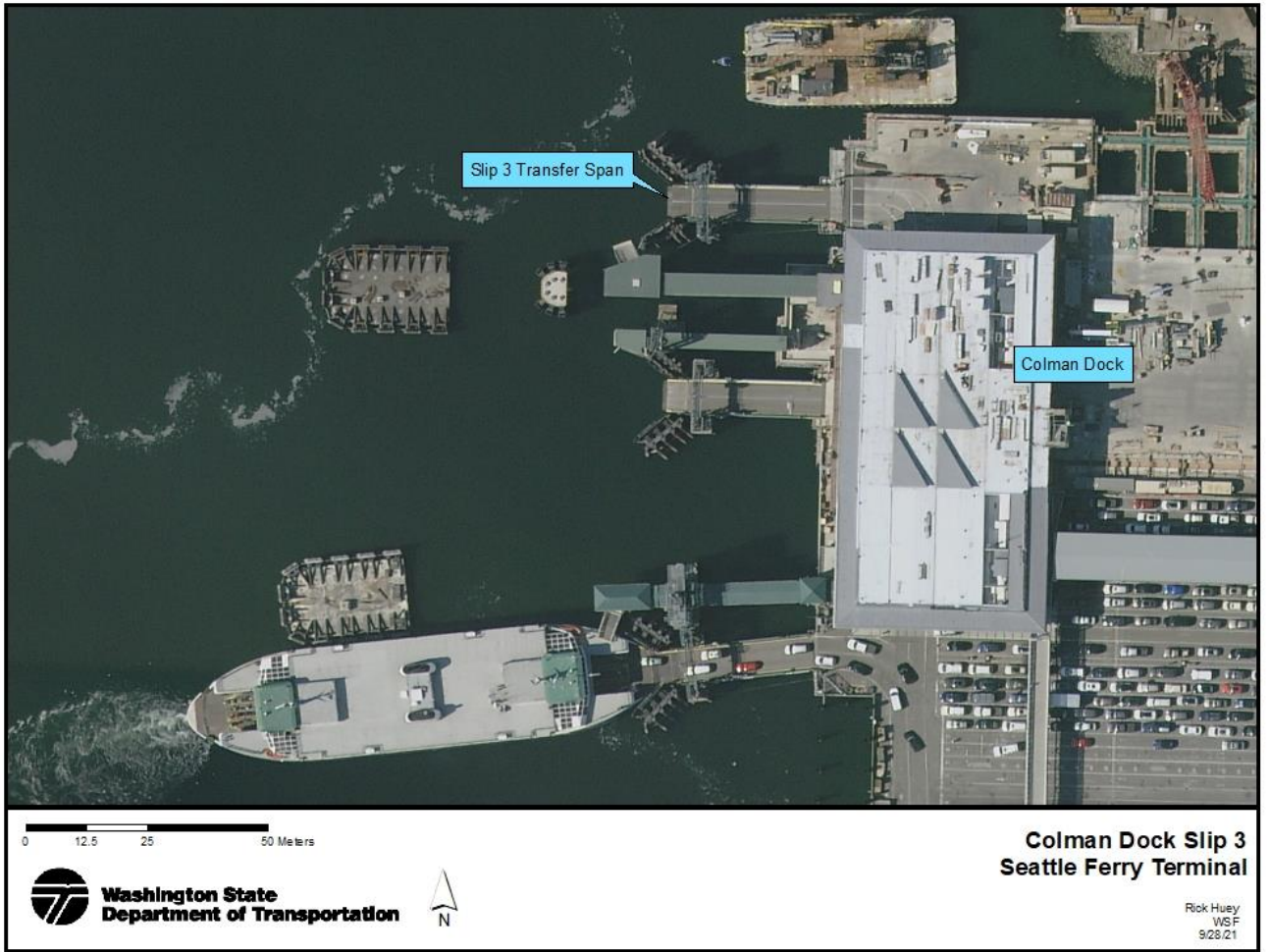


Figure 1-3 Slip 3

## 1.5 In-water Construction Details

In-water pile removal and driving (Table 1-1) is scheduled to begin August 1, 2024, and will be complete by the end of the in-water work window (February 15, 2025) (unless a work-window extension is granted by NMFS and USFW).

**Table 1-1 2024-2025 In-water Construction Planned**

Permanent Structures	Permanent Installed	Permanent Removed
Slip 3 Transfer Span	(2) 78” steel piles	(16) 14-inch steel H-piles
Slip 3 Wingwall	(1) 30” steel pile	(1) 30-inch steel wingwall pile (cut not vibrated)
Temporary Structures	Temporary Installed	Temporary Removed
Templates	(12) 24” steel	(12) 24” steel

## 1.6 Pile Driving and Removal Techniques

Project vibratory hammer driving and removal, and impact hammer driving may affect marine mammals.

### 1.6.1 Vibratory Hammer Driving and Removal

Vibratory hammers are used to drive piles where substrate conditions allow and are also used to remove piles. When pile driving, the pile is placed into position using a choker and crane, and then vibrated between 1,200 and 2,400 vibrations per minute (Figure 1-4). The vibrations liquefy the sediment surrounding the pile allowing it to penetrate to the required seating depth, or to be removed. The type of vibratory hammer that is being used for the project is an APE 400 King Kong (or equivalent) with a drive force of 361 tons.

### 1.6.2 Impact Hammer Installation

Impact hammers are used to install piles, especially when substrate conditions are difficult (such as glacial till) or when proofing (gathering load bearing data). Impact hammers have guides (called a lead) that hold the hammer in alignment with the pile while a heavy piston moves up and down, striking the top of the pile, and driving it into the substrate from the downward force of the hammer on the top of the pile.

To drive the pile, the pile is first moved into position and set in the proper location using a choker cable or vibratory hammer. Once the pile is set in place, pile installation with an impact hammer can take less than 15 minutes under good conditions, to over an hour under poor conditions (such as glacial till and bedrock, or exceptionally loose material in which the pile repeatedly moves out of position). Figure 1-5 shows a pile being driven with an impact hammer.



**Figure 1-4 Vibratory Hammer Driving a Steel Pile**



**Figure 1-5 Impact Hammer Driving a Steel Pile**





## 1.7 Sound Levels and Noise Analysis

Under the NMFS Technical Guidance for Assessing the Effects of Anthropogenic Sound on Marine Mammal Hearing (Guidance) (NMFS 2018b), calculations of Level A thresholds (permanent and temporary threshold shift) and Level B thresholds (harassment) were analyzed to understand the potential effects of pile driving and removal noise on marine mammals for this project.

### 1.7.1 Source Levels

The source level for vibratory pile driving and removal of 24-in and 30-in steel piles is based on vibratory pile driving of 30-in steel piles at the Port Townsend Ferry Terminal. The unweighted  $SPL_{rms}$  source level is 174 dB re 1  $\mu Pa$  @ 10 m (WSDOT 2010a).

The source level for vibratory pile driving of 78-in steel piles is based on vibratory driving of 72-inch steel piles at the WSDOT SR529 Ebey Slough Bridge Replacement Project. The results show that the unweighted  $SPL_{rms}$  was 170 dB re 1  $\mu Pa$  @ 15 m (WSDOT 2011). However, because this source level is lower than levels to be used for smaller steel piles on this project, a more conservative source level of 174 dB re 1  $\mu Pa$  @ 10 m will be used (WSDOT 2010a).

The source levels for impact pile driving (proofing) of the 24-in temporary steel piles are based on the Colman Year Two Acoustic Monitoring Report (Appendix B/WSDOT 2019). The highest source level recorded was: 166 SEL/176 RMS/194 Peak @ 10 m.

The source level for vibratory removal of 14-in steel H-piles is based on vibratory pile driving of 12-in H-piles at the Bainbridge Island Ferry Terminal. The unweighted source level is 153 dB $_{rms}$  re 1  $\mu Pa$  @ 10 m (WSDOT 2023).

A summary of source levels is presented in Table 1-2.

**Table 1-2 Summary of Source Levels**

Method	Pile type / size (inch)	SEL, dB re 1 $\mu Pa^2$ -s @ 10m	$SPL_{rms}$ , dB re 1 $\mu Pa$ @ 10m	$SPL_{pk}$ , dB re 1 $\mu Pa$ @ 10m
Vibratory driving	Steel, 78-in	-	174@	-
Vibratory driving	Steel, 30-in	-	174@	-
Vibratory driving/removal	Steel, 24-in	-	174@	-
Impact driving (proof)	Steel, 24-in	166@	176@	194@
Vibratory removal	Steel, 14-in	-	153@	-

### 1.7.2 Distances to Level A and B Zones

Distances to Level A and B zones are provided in Table 1-3, and calculation are documented in Appendix D.

**Table 1-3 Distances to Level A/Level B Zones**

Pile type, size & pile driving method	Level A Injury zone (m)/Area (m <sup>2</sup> )					Level B ZOI (m)/Area (m <sup>2</sup> )
	LF cetacean	MF cetacean	HF cetacean	Phocid	Otariid	
Vibratory drive, 78" steel pile, 1 pile/day, 60 min/pile	50.2/ 1,979.2	4.5/ 15.9	74.3/ 4,336	30.5/ 730.6	2.1/ 3.5	15,410*/ 75,844,286
Vibratory drive, 30" steel pile, 1 pile/day, 60 min/pile	50.2/ 1,979.2	4.5/ 15.9	74.3/ 4,336	30.5/ 730.6	2.1/ 3.5	15,410/ 75,844,286
Vibratory drive/removal 24" steel pile, 3 piles/day, 30 min/pile	65.8/ 3,400.5	5.8/ 26.4	97.3/ 7,436	40.0/ 1,256.6	2.8/ 6.2	15,410/ 75,844,286
Vibratory removal 14" steel pile, 4 piles/day, 30 min/pile	3.2/ 8.0	0.3/ 0.07	4.7/ 17.4	1.9/ 2.8	0.1/ 0.007	1,585/ 3,247,392
Impact drive (proof) 24" steel piles, 3 piles/day, 350 strikes/pile	75.9/ 4,524.5	2.7/ 5.7	90.4/ 6,418	40.6/ 1,294.6	3.0/ 7.07	736/ 861,188

\*Land is reached at a maximum of 15,410 m (15.4 km/9.6 miles)

### 1.7.3 Exclusion Zones

Exclusion zones (Table 1-4) have been established to prevent harassment of Southern Resident killer whale (SRKW) and humpback whale, and injury of other species. For all marine mammals except SRKW and humpback whale, the shut-down zone is the Level A zone (conservatively rounded up to simplify monitoring). For SRKW and humpback whale, the Exclusion zone is the Level B ZOI threshold (conservatively rounded up). No Level A take is requested for this project.

**Table 1-4 Exclusion Zones**

Pile type, size & pile driving method	Exclusion Zone (m)					SRKW/ Humpback Exclusion (m)
	LF cetacean	MF cetacean	HF cetacean	Phocid	Otariid	
Vibratory drive, 78" steel pile, 1 piles/day, 60 min/pile	100	100	100	50	50	15,410*
Vibratory drive, 30" steel pile, 1 pile/day, 60 min/pile	100	100	100	50	50	15,410
Vibratory drive/removal 24" steel pile, 3 piles/day, 30 min/pile	100	100	100	50	50	15,410
Vibratory removal 14" steel pile, 4 piles/day, 30 min/pile	50	50	50	50	50	1,600
Impact drive (proof) 24" steel piles, 3 piles/day, 350 strikes/pile	100	100	100	50	50	750

\*Land is reached at a maximum of 15,410 m (15.4 km/9.6 miles)

The analysis results in three Zones of Influence:

- ZOI-1 – Vibratory driving of (24/78") and removal (30/24") steel piles
- ZOI-2 – Vibratory removal of 14" steel piles
- ZOI-3 – Impact driving of 24" steel piles (includes in-air ZOI)

ZOI's and exclusion zones are shown in Figures 1-6 to 1-9.

### 1.7.4 Airborne Reference Sound Source Levels

While in-air sounds are not applicable to cetaceans, they are to pinnipeds, especially harbor seals when hauled out. Loud noises can cause hauled out seals to panic back into the water, leading to disturbance and possible injury to stamped pups.

- Based on in-air measurements at the WSF Coupeville Ferry Terminal, vibratory driving of a 30-inch steel pile generated a maximum of 97 dB<sub>rms</sub> (unweighted) @ 15m/50 ft. (WSDOT 2010b). It is assumed that in-air noise generated during vibratory driving or removal of all other project piles will generate the same source level (96.9 dB<sub>rms</sub>
- No in-air data is available for 24” steel piles. Based on in-air measurements during the Seattle Test Pile Project, impact pile driving of a 36-inch steel pile generated 111 dB<sub>rms</sub> (unweighted) @ 15 m/50 ft. (WSDOT 2016).

### 1.7.5 Vibratory and Impact Pile Driving Airborne Noise

NMFS has established an in-air noise disturbance threshold of 90 dB<sub>rms</sub> (unweighted) for harbor seals, and 100 dB<sub>rms</sub> (unweighted) for all other pinnipeds (sea lions).

- Noise generated during vibratory installation and/removal (97 dB<sub>rms</sub> @ 15 m/50 ft. will reach the harbor seal threshold at approximately 4.6 m/15 ft. and is below the other pinnipeds threshold). This distance is smaller than the 50 m pinniped shutdown zone, so no in-air harassment of harbor seals will take place during vibratory pile installation/removal.
- Noise generated during impact driving (111 dB<sub>rms</sub> @ 15 m/50 ft.) will reach the harbor seal threshold at approximately 964 m/3,162 ft. (Figure 1-9), and the other pinnipeds threshold at approximately 21 m/68 ft.

There are no documented harbor seal haul-outs in the project ZOI (WDFW 2000), but harbor seals make use of undocumented docks, buoys and beaches in the area. Sea lions have been observed making regular use of two buoys (undocumented haul-outs) approximately 3 km (2 miles) SW of the ferry terminal (Figure 3-1).

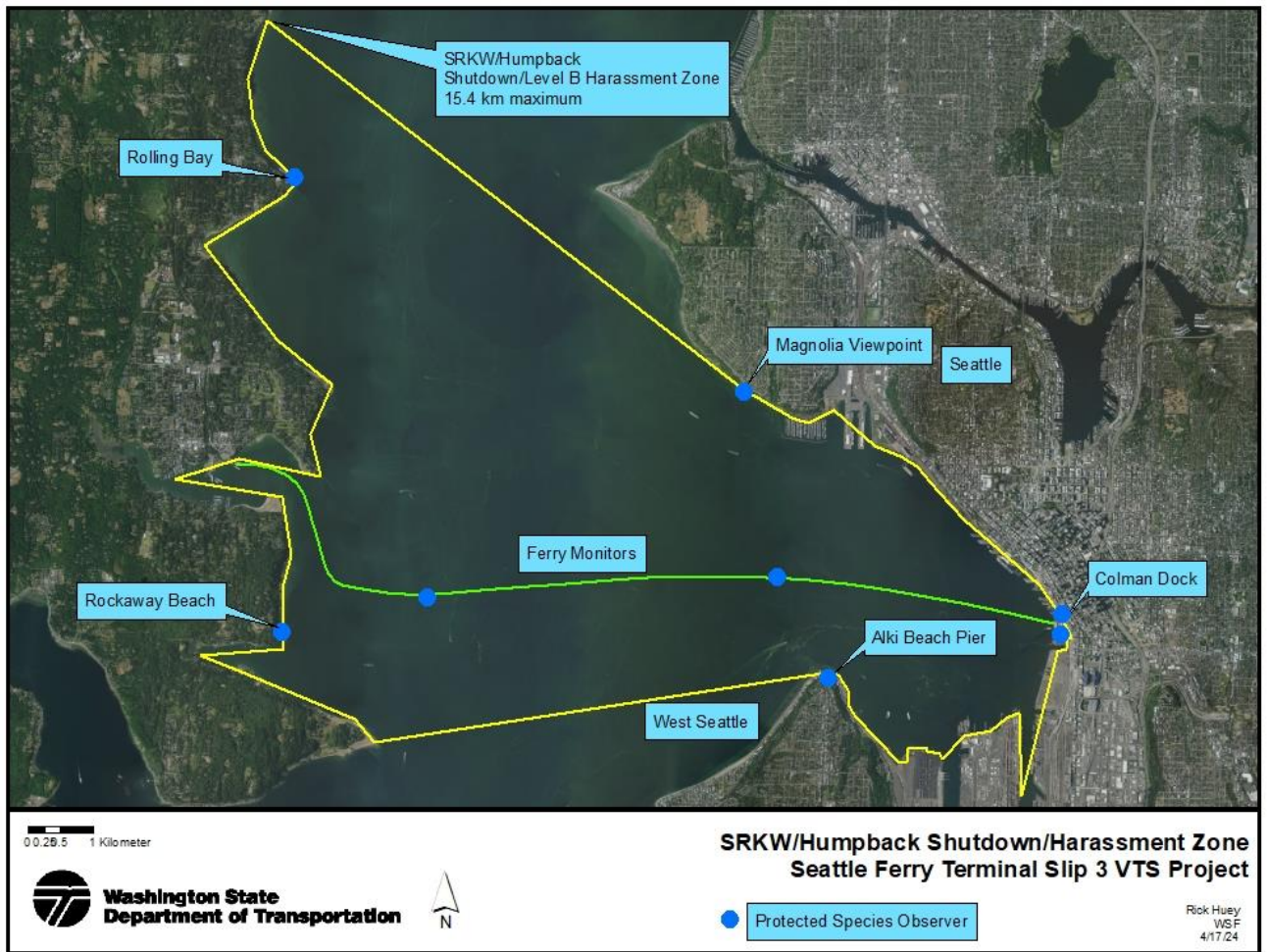


Figure 1-6 ZOI-1 24/30/78" Steel Vibratory Offshore Zone

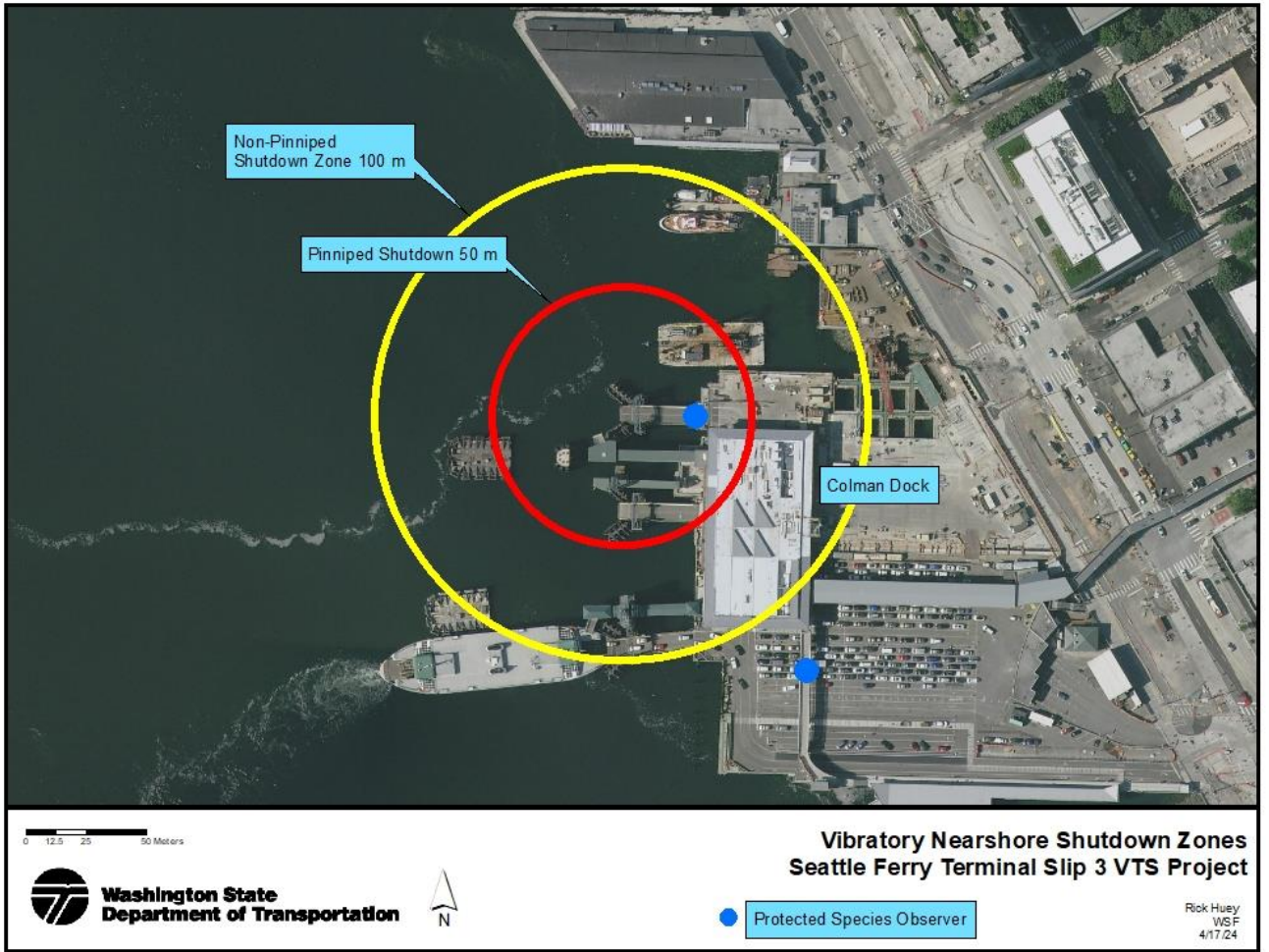


Figure 1-7 ZOI-1 24/30/78" Steel Vibratory Nearshore Zones

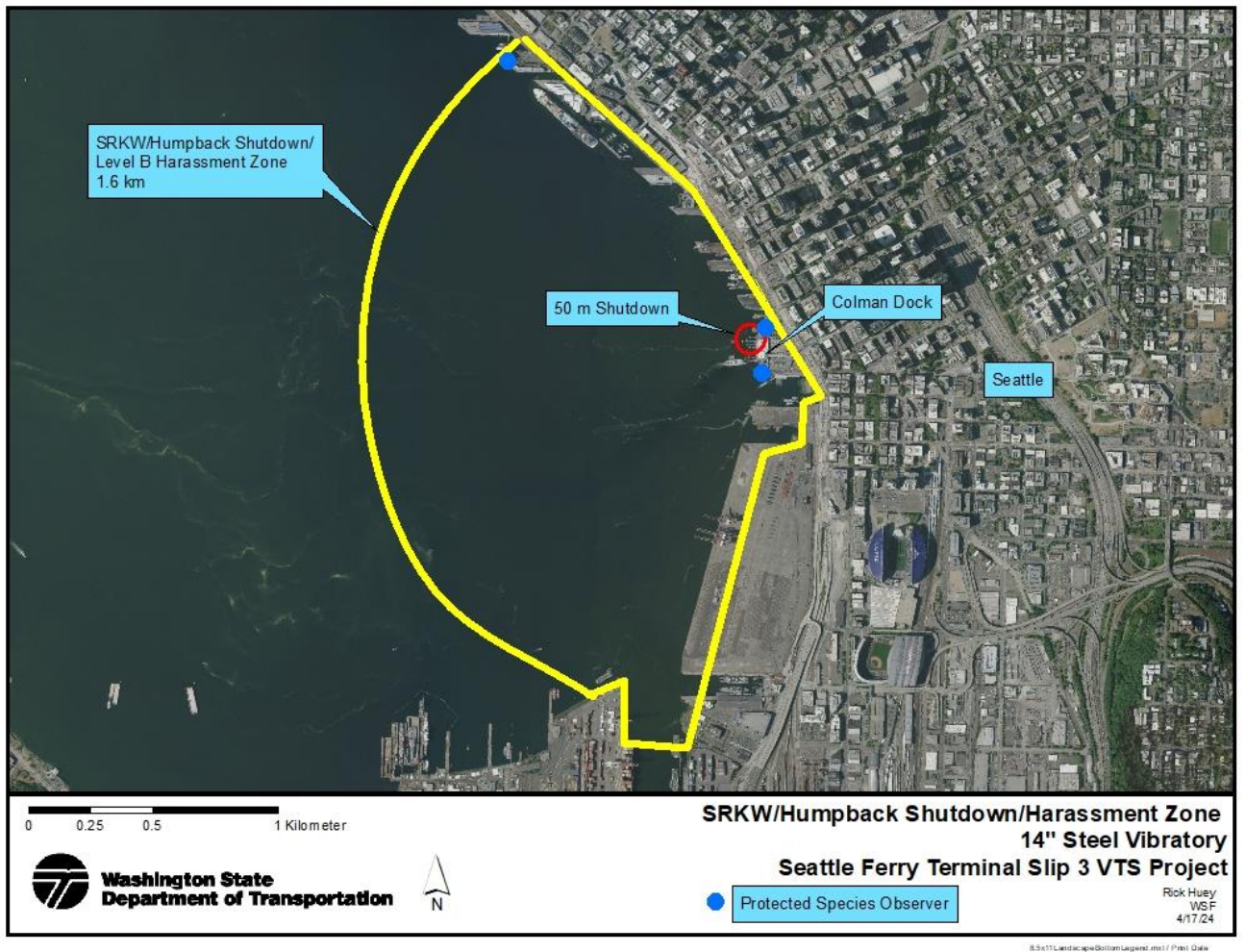


Figure 1-8 ZOI-2 14" Steel Vibratory Zone

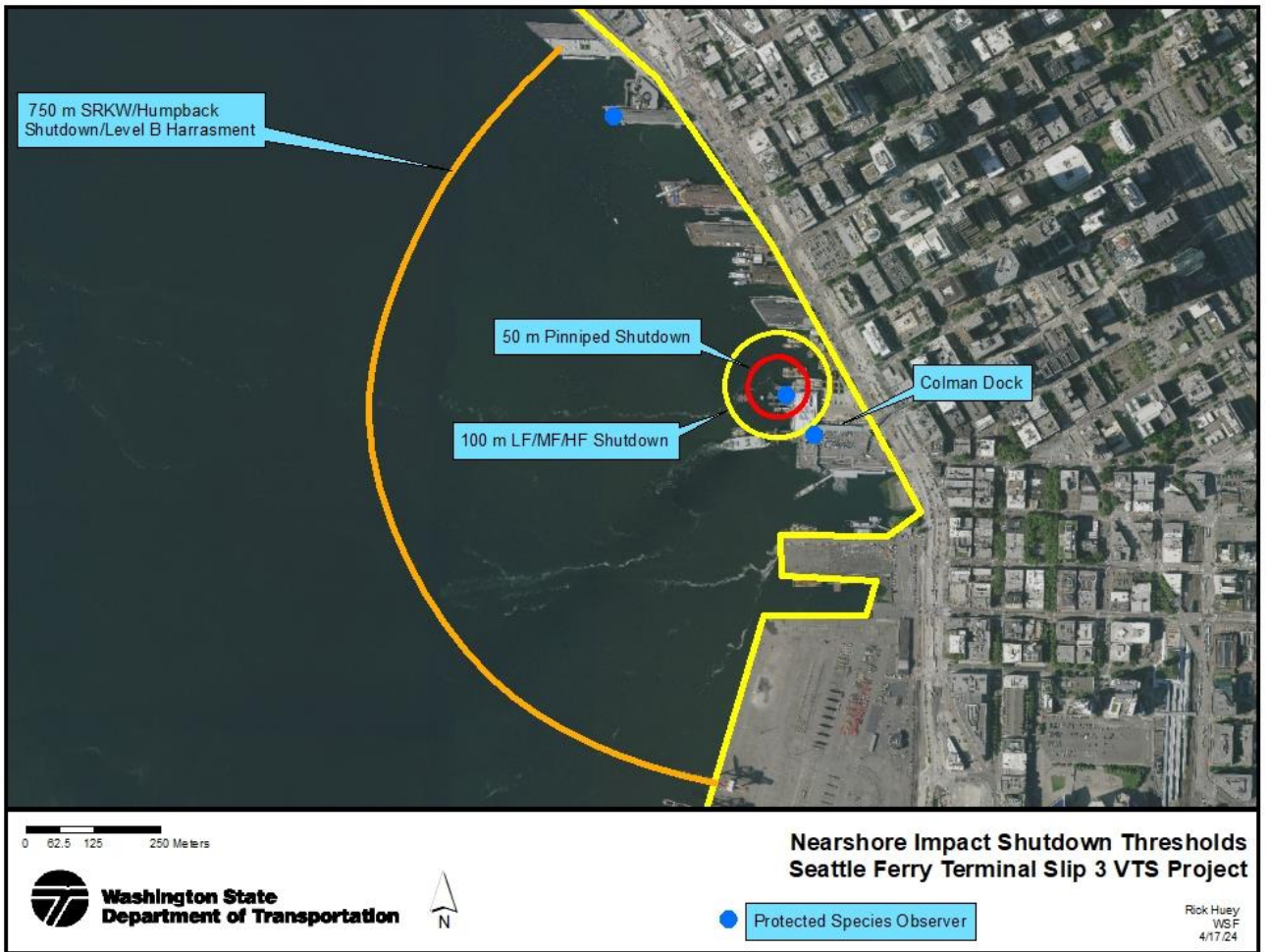


Figure 1-9 ZOI-3 24" Steel Impact Zones



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## 2.0 Dates, Duration, and Region of Activity

*The date(s) and duration of such activity and the specific geographical region where it will occur.*

### 2.1 Dates

Due to NMFS and USFWS in-water work timing restrictions to protect ESA-listed salmonids, WSF in-water construction for the Seattle terminal is limited each year to July 16 through February 15. For this IHA, in-water construction is planned to take place between August 1, 2024 and February 15, 2025.

### 2.2 Durations

The total worst-case durations for pile driving and removal is 10 days (Table 2-1).

**Table 2-1 Pile Driving and Removal Durations**

Method	Pile type	Pile size (inch)	Pile number	Piles /day	Minutes /pile	Duration (Days)
Vibratory drive	Steel	78	2	1	60	2
Vibratory drive	Steel	30	1	1	60	1
Vibratory drive	Steel (temporary)	24	12	3	30	4
Impact drive	Steel (temporary)	24	12	3	30	4
<b>Subtotal</b>						<b>11</b>
Vibratory remove	Steel (temporary)	24	12	3	30	4
Vibratory remove	Steel	14	16	4	30	4
<b>Subtotal</b>						<b>8</b>
<b>Total</b>						<b>19</b>

### 2.3 Region of Activity

The proposed activities will occur at the Seattle Ferry Terminal at Colman Dock, located in the City of Seattle, Washington (see Figures 1-1 and 1-2).

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### 3.0 Species and Numbers of Marine Mammals in Area

This section is a combination of items 3 and 4 from NOAA's list of information required for an incidental take authorization. It provides:

*The species and numbers of marine mammals likely to be found within the activity area.*

*A description of the status, distribution, and seasonal distribution (when applicable) of the affected species or stocks of marine mammals likely to be affected by such activities.*

It also describes the ESA and MMPA status for each species. Possible ESA status designations include:

- Threatened: "any species which is likely to become an endangered species within the foreseeable future throughout all or a significant portion of its range."
- Endangered: "any species which is in danger of extinction throughout all or a significant portion of its range."
- Proposed: *candidate species* that were found to warrant listing as either threatened or endangered and are officially proposed as such in a *Federal Register* notice.
- Delisted: No longer listed under the ESA.
- Unlisted: Not currently listed under the ESA.

Possible MMPA status designations include:

- Strategic: a marine mammal stock for which the level of direct human-caused mortality exceeds the potential biological removal level; which, based on the best available scientific information, is declining and is likely to be listed as a threatened species under the ESA within the foreseeable future; or which is listed as a threatened or endangered species under the ESA, or is designated as depleted under the MMPA.
- Depleted: the Secretary, after consultation with the Marine Mammal Commission and the Committee of Scientific Advisors on Marine Mammals established under MMPA title II, determines that a species or population stock is below its optimum sustainable population; a State, to which authority for the conservation and management of a species or population stock is transferred under section 109, determines that such species or stock is below its optimum sustainable population; or a species or population stock is listed as a threatened or endangered species under the ESA.
- Non-depleted: a species or population stock is at or above its optimum sustainable population (NMFS 2013a).

### 3.1 Species Present

Eleven species of marine mammals can be found in the Seattle Ferry Terminal area (Table 3-1).

**Table 3-1 Marine Mammal Species Potentially Present in Region of Activity**

Species	ESA Status	MMPA Status	Timing of Occurrence	Frequency of Occurrence
Harbor Seal	Not listed	Non-depleted	Year-round	Common
Northern Elephant Seal	Unlisted	Non-depleted	Year-round	Occasional
California Sea Lion	Not listed	Non-depleted	August-April	Common
Steller Sea Lion	Delisted	Strategic/Depleted	August-April	Occasional
Killer Whale Southern Resident	Endangered	Depleted	September - May	Common
Killer Whale Transient	Not listed	Depleted	Year-round	Occasional
Gray Whale	Delisted	Unclassified	January-May	Occasional
Humpback whale (Central America DPS)	Endangered	Depleted	Year-round	Rare
Humpback whale (Mexico DPS)	Threatened	Depleted	Year-round	Occasional
Humpback whale (Hawaii DPS)	Not listed	Depleted	Year-round	Occasional
Minke Whale	Not listed	Non-depleted	September- January	Occasional
Harbor Porpoise	Not listed	Non-depleted	May-June peak	Common
Dall's Porpoise	Not listed	Non-depleted	October-February	Occasional
Long-beaked Common Dolphin	Not listed	Non-depleted	Year-round	Occasional

#### 3.1.1 Numbers

Sightings data from the Seattle Multimodal project (4 seasons/377 days) (Appendix D/WSDOT 2022) will be used for this application. A data summary is provided in Table 3-2. Because multiple observers may record the same individual as it travels through the monitoring zones, there were two data entry options available: Duplicate Sighting (90-100% certainty) and Likely a Duplicate (70-90% certainty). The individuals observed under these categories have been eliminated from the data presented in Table 3-2. Long-beaked Common dolphins have been

sighted in Puget Sound. Four unconfirmed sightings were documented during the Seattle project. Though unconfirmed, take is requested for this species to prevent project shutdown if they are sighted. Table 3-2 provides sightings within the project ZOI (Elliott Bay/Puget Sound), and it the best information about which species may be present during the project.

**Table 3-2 Marine Mammal Sightings**

<b>Species</b>	<b>Sightings Total<sup>1</sup></b>	<b>Average Sightings/Day (377 days)</b>	<b>Maximum One-day Sightings<sup>1</sup></b>	<b>Take Requested</b>
Harbor Seal	2,271	6.0	32	Yes
Northern Elephant Seal	1	0.003	1	Yes
California Sea Lion	3,669	9.7	29	Yes
Steller Sea Lion	112	0.3	10	Yes
Unidentified pinniped	121	N/A	N/A	N/A
Killer Whale Southern Resident	170	0.5	26	<b>No</b>
Killer Whale Transient	79	0.2	20	Yes
Gray Whale	5	0.01	2	Yes
Humpback whale	8	0.02	1	No
Minke Whale	3	0.008	1	Yes
Unidentified large whale	2	N/A	1	N/A
Unidentified small whale	10	N/A	N/A	N/A
Harbor Porpoise	655	1.7	72	Yes
Dall's Porpoise	8	0.02	5	Yes
Bottlenose Dolphin	8	0.02	2	Yes
Pacific White Sided Dolphin	2	0.005	2	Yes
Long-beaked Common Dolphin	4	0.01	2	Yes
Unidentified dolphin/porpoise	46	N/A	6	N/A

<sup>1</sup>WSDOT 2022

## **3.2 Pinnipeds**

There are four species of pinnipeds that present in the Seattle Ferry Terminal area: harbor seal (*Phoca vitulina richardsi*), Northern elephant seal (*Mirounga angustirostris*), California sea lion (*Zalophus californianus*) and Steller sea lion (*Eumetopias jubatus*).

### **3.2.1 Harbor Seal**

There are three stocks in Washington’s inland waters, the Hood Canal, Northern Inland Waters, and Southern Puget Sound stocks. Seals belonging to the Northern Inland Waters Stock are present at the project site. Pupping seasons vary by geographic region. For the northern Puget Sound region, pups are born from late June through August (WDFW 2009). After October 1, all pups in the inland waters of Washington are weaned. Of the pinniped species that commonly occur within the region of activity, harbor seals are the most common and the only pinniped that breeds and remains in the inland marine waters of Washington year-round (Calambokidis and Baird 1994a).

#### **3.2.1.1 Numbers**

According to the 2014 Stock Assessment Report, the most recent estimate for the Washington Northern Inland Waters Stock is 11,036 (NMFS 2014a). However, there are an estimated 32,000 harbor seals in Washington today, and their population appears to have stabilized (Jeffries 2013), so the estimate of 11,036 may be low.

#### **3.2.1.2 Status**

The Washington Inland Waters stock of harbor seals is “non-depleted” under the MMPA and “unlisted” under the ESA.

#### **3.2.1.3 Distribution**

Harbor seals are the most numerous marine mammal species in Puget Sound. Harbor seals are non-migratory; their local movements are associated with such factors as tides, weather, season, food availability and reproduction (Scheffer and Slipp 1944; Bigg 1969, 1981). They are not known to make extensive pelagic migrations, although some long-distance movements of tagged animals in Alaska (108 miles) and along the U.S. west coast (up to 342 miles) have been recorded (Pitcher and McAllister 1981; Brown and Mate 1983; Herder 1983).

Harbor seals haul out on rocks, reefs and beaches, and feed in marine, estuarine and occasionally fresh waters. Harbor seals display strong fidelity for haul out sites (Pitcher and Calkins 1979; Pitcher and McAllister 1981). There are no documented harbor seal haul out sites in the project ZOI (WDFW 2000), but seals have been observed hauling out on undocumented constructed beaches and docks in the area.

### **3.2.2 Northern Elephant Seal**

The California breeding stock of northern elephant seal may be present near the project site.

#### **3.2.2.1 Numbers**

The California stock of northern elephant seal minimum population size is estimated as 85,369 (NMFS 2022a). In Puget Sound and the Strait of San Juan de Fuca, 10 to 15 northern elephant seal pups are born each year on Whidbey, Protection, and Smith Islands, Dungeness Spit and Race Rocks.

#### **3.2.2.2 Status**

The California breeding stock of northern elephant seal is not ESA listed, and not considered a depleted or strategic stock under the MMPA.

#### **3.2.2.3 Distribution**

Northern elephant seals breed and give birth in California (U.S.) and Baja California (Mexico), primarily on offshore islands, from December to March. Males feed near the eastern Aleutian Islands and in the Gulf of Alaska, and females feed further south. Adults return to land between March and August to molt, with males returning later than females. Adults return to their feeding areas again between their spring/summer molting and their winter breeding seasons (NMFS 2015a). The closest documented northern elephant seal haul out is Protection Island (30 miles northwest of the ferry terminal). Male elephant seals have also been observed in Puget Sound, as far south as Vashon Island (Miller 2015 personal comm. 4/6/15).

### **3.2.3 California Sea Lion**

Washington California sea lions are part of the U.S. stock, which begins at the U.S./Mexico border and extends northward into Canada.

#### **3.2.3.1 Numbers**

The minimum population size of the U.S. stock was estimated at 233,515 (NMFS 2019). Some 3,000 to 5,000 animals are estimated to move into northwest waters (both Washington and British Columbia) during the fall and remain until the late spring when most return to breeding rookeries in California and Mexico (Jeffries et al. 2000; J. Calambokidis pers. comm. 2008). Peak counts of over 1,000 animals have been made in Puget Sound (Jeffries et al. 2000).

There are no documented haul-out sites in the project ZOI (WDFW 2000), but California sea lions have been observed making regular use of two buoys (undocumented haul outs) approximately 3 km (2 miles) SW of the ferry terminal (Figure 3-1).

#### **3.2.3.2 Status**

California sea lions are not listed as endangered or threatened under the ESA or as depleted or strategic under the MMPA.



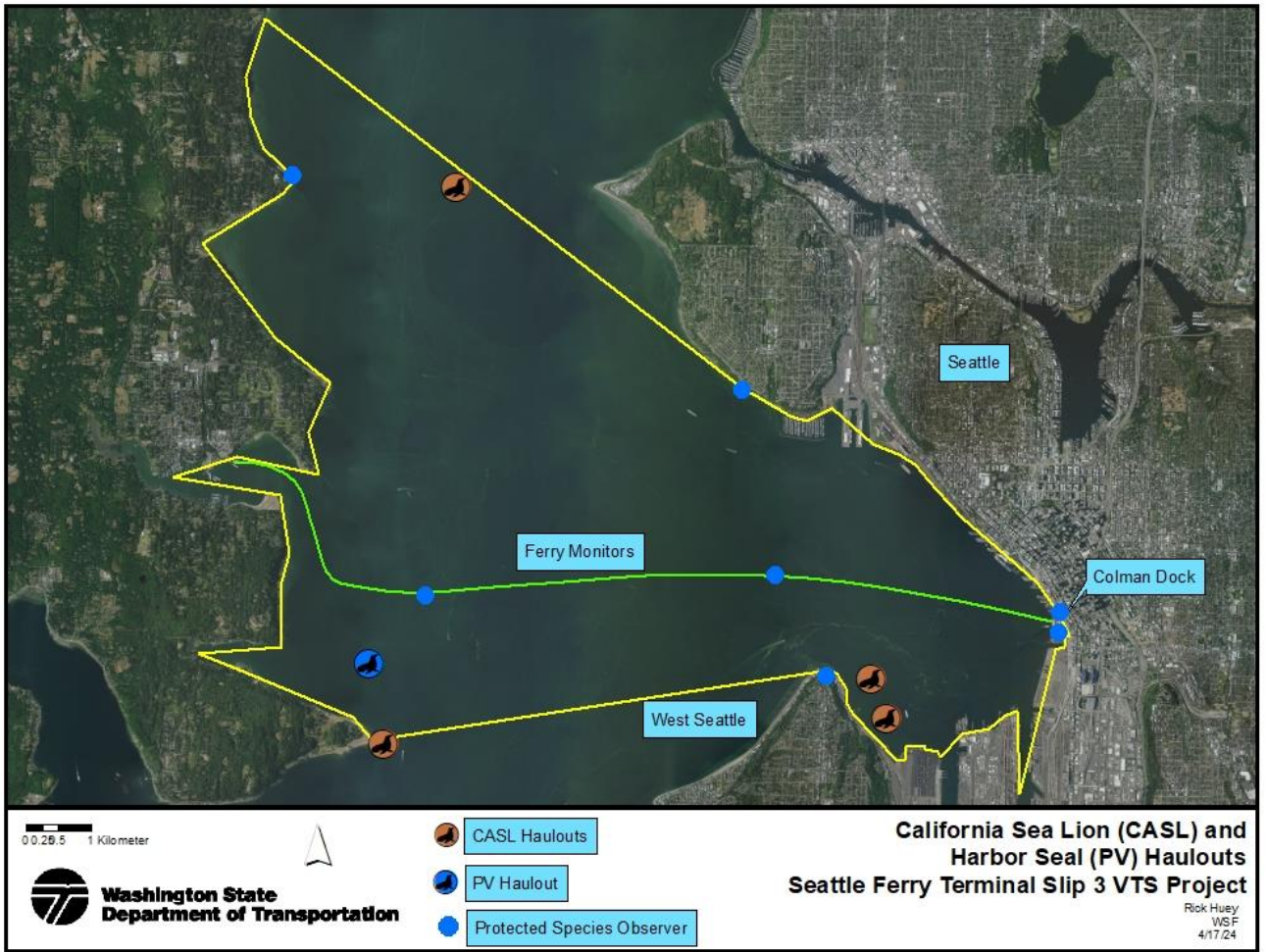


Figure 3-1 Pinniped Haulouts in the project ZOI

### 3.2.3.3 Distribution

California sea lions breed on islands off Baja Mexico and southern California with primarily males migrating to feed in the northern waters (Everitt et al. 1980). Females remain in the waters near their breeding rookeries off California and Mexico. All age classes of males are seasonally present in Washington waters (Jeffries, et al. 2000).

California sea lions were unknown in Puget Sound until approximately 1979 (Steiger and Calambokidis 1986). Everitt et al. (1980) reported the initial occurrence of large numbers at Port Gardner, Everett (northern Puget Sound) in the spring of 1979. The number of California sea lions using the Everett haulout numbered around 1,000. This haulout remains the largest in the state for sea lions in general and for California sea lions specifically (P. Gearin pers. comm. 2008). Similar sightings and increases in numbers were documented throughout the region after

the initial sighting in 1979 (Steiger and Calambokidis 1986), including urbanized areas such as Elliott Bay near Seattle and heavily used areas of central Puget Sound (P. Gearin et al. 1986).

The movement of California sea lions into Puget Sound could be an expansion in range of a growing population (Steiger and Calambokidis 1986). In Washington, California sea lions use haulout sites within all inland water regions (Jeffries, et al. 2000).

California sea lions do not avoid areas with heavy or frequent human activity, but rather may approach certain areas to investigate. This species typically does not flush from a buoy or haulout if approached.

### **3.2.4 Steller Sea Lion**

The Eastern U.S. stock of Steller sea lion may be present near the project site.

#### **3.2.4.1 Numbers**

The most recent minimum population estimate for the eastern U.S. stock of Steller sea lions is 43,201 individuals (NMFS 2019).

Steller sea lion numbers in Washington State decline during the summer months, which correspond to the breeding season at Oregon and British Columbia rookeries (approximately late May to early June) and peak during the fall and winter months (Jeffries et al. 2000). A few Steller sea lions can be observed year-round in Puget Sound although most of the breeding age animals return to rookeries in the spring and summer (P. Gearin pers. comm. 2008).

#### **3.2.4.1 Status**

The eastern stock of Steller sea lions is classified as “non-strategic” under the MMPA and was “delisted” under the ESA on November 4, 2013 (78 FR 66140).

#### **3.2.4.2 Distribution**

Adult Steller sea lions congregate at rookeries in California, Oregon, Washington, and British Columbia for pupping and breeding from late May to early June (Gisiner 1985).

For Washington inland waters, Steller sea lion abundances vary seasonally with a minimum estimate of 1,000 to 2,000 individuals present or passing through the Strait of Juan de Fuca in fall and winter months (S. Jeffries pers. comm. 2008).

There are no documented Steller sea lion haul-out sites in the project ZOI (WDFW 2000).

### **3.3 Cetaceans**

Seven cetacean species may be present in the Seattle terminal area: killer whale (Southern Resident and Transient), gray whale, humpback whale, Minke whale, harbor porpoise, Dall’s porpoise and Long-beaked common dolphin.

#### **3.3.1 Killer Whale**

The Eastern North Pacific Southern Resident (SRKW) and West Coast Transient (Transient) stocks of killer whale may be found near the project site. Killer whales are mid-frequency hearing range cetaceans (NMFS 2018b).

##### **3.3.1.1 Numbers**

###### **Southern Resident Stock**

The Southern Residents live in three family groups known as the J, K and L pods, and currently consists of 75 individuals (CWR 2023).

###### **West Coast Transient Stock**

Transient killer whales generally occur in smaller (less than 10 individuals), less structured pods (NMFS 2013b). According to the Center for Whale Research (CWR 2015), they tend to travel in small groups of one to five individuals, staying close to shorelines, often near seal rookeries when pups are being weaned. The West Coast Transient stock, which includes individuals from California to southeastern Alaska, has a minimum population estimate of 346 (NMFS 2000).

##### **3.3.1.2 Status**

###### **Southern Resident Stock**

The SRKW stock was declared “depleted/strategic” under the MMPA in May 2003 (68 FR 31980). On November 18, 2005, the SR stock was listed as “endangered” under the ESA (70 FR 69903). On November 29, 2006, NMFS published a final rule designating critical habitat for the SR killer whale DPS. Both Puget Sound and the San Juan Islands are designated as core areas of critical habitat under the ESA, excluding areas less than 20 feet deep relative to extreme high water (71 FR 69054). A final recovery plan for Southern Residents was published in January of 2008 (NMFS 2008). On February 23, 2015, NMFS announced a 12-month finding on a petition to revise the Critical Habitat Designation for the Southern Resident killer whale distinct population segment is warranted (NMFS 2015c). On September 9, 2019, NMFS proposed a revision of critical habitat (50 FR 226). The revision was completed on August 2, 2021. The final rule maintains the previously designated critical habitat in inland waters of Washington and expands it to include certain coastal waters off Washington, Oregon, and California (86 FR 41668).

###### **West Coast Transient Stock**

The West Coast Transient stock is “non-depleted” under the MMPA, and “unlisted” under the ESA.

## Washington State Status

In Washington State, all killer whales (*Orcinus orca*) that may be present in Washington waters (Southern Resident, West Coast Transient, and Offshore) were listed as a state candidate species in 2000. In April 2004, the State upgraded their status to a “state endangered species” (WDFW 2004).

### 3.3.1.3 Distribution

The SRKW and West Coast Transient stocks are both found within Washington inland waters. Individuals of both stocks have long-ranging movements and regularly leave the inland waters (Calambokidis and Baird 1994).

#### Southern Resident Stock Distribution

Southern Residents are documented in coastal waters ranging from central California to the Queen Charlotte Islands, British Columbia (NMFS 2008). They occur in all inland marine waters. Distribution is strongly associated with areas of greatest salmon abundance, with heaviest foraging activity occurring over deep open water and in areas characterized by high-relief underwater topography, such as subsurface canyons, seamounts, ridges, and steep slopes (Wiles 2004).

**Spring/Summer Distribution.** Beginning in May or June and through the summer months, all three pods (J, K and L) of Southern Residents are most often located in the protected inshore waters of Haro Strait (west of San Juan Island), in the Strait of Juan de Fuca, and Georgia Strait near the Fraser River. Depending on prey abundance, the pods may be present in Puget Sound.

**Fall/Winter Distribution.** In fall, all three pods occur in areas where migrating salmon are concentrated such as the mouth of the Fraser River. They may also enter areas in Puget Sound where migrating chum and Chinook salmon are concentrated (Osborne 1999). In the winter months, the K and L pods spend progressively less time in inland marine waters and depart for coastal waters in January or February. The J pod is most likely to appear year-round near the San Juan Islands, and in the fall/winter, in the lower Puget Sound and in Georgia Strait at the mouth of the Fraser River.

#### West Coast Transient Stock Distribution

The West Coast Transient stock occurs in California, Oregon, Washington, British Columbia, and southeastern Alaskan waters. Within the inland waters, they may frequent areas near seal rookeries when pups are weaned (Baird and Dill 1995).

West Coast Transients are documented intermittently year-round in Washington inland waters. Transient sightings have become more common since the mid-2000’s, as the pinniped prey population has increased. Transients may be present in the area for hours as they hunt pinnipeds.

### **3.3.2 Gray Whale**

The Eastern North Pacific gray whale may be found near the project site. Gray whales are low-frequency range cetaceans (NMFS 2018b).

#### **3.3.2.1 Numbers**

The most recent population estimate for the Eastern North Pacific stock is 25,849 individuals (NMFS 2021). Animals that spend the summer and autumn feeding in coastal waters of the Pacific coast of North America from California to southeast Alaska have been designated as the “Pacific Coast Feeding Group” or PCFG (IWC 2012).

#### **3.3.2.2 Status**

The Eastern North Pacific stock of gray whales is non-depleted under the MMPA and was delisted under the ESA in 1994.

#### **3.3.2.3 Distribution**

Gray whales are present throughout Puget Sound but are most common in the Possession Sound and Port Susan area (approximately 20 miles NW of Seattle). This is driven by the ‘resident’ population of gray whales that returns to the Possession Sound and Port Susan area each year, primarily in spring and summer (Calambokidis et al., 2014).

### **3.3.3 Humpback Whale**

The, the Hawaii DPS, Mainland Mexico /California-Oregon-Washington (CA-OR-WA) DPS and the Central American/Southern Mexico/CA-OR-WA DPS stocks of humpback whale may be found near the project site. The following stock percentages are possible in WA coastal waters and could be present in Puget Sound: Hawaii 69%; Mexico 25%; Central America 6% (Pers. Comm. A. Demerast 2024).

Humpback whales are low-frequency hearing range cetaceans (NMFS 2018b).

#### **3.3.3.1 Hawaii Stock**

##### **3.3.3.1.1 Numbers**

The minimum population estimate for this stock is 7,265 (NMFS 2023a).

##### **3.3.3.1.2 Status**

This stock is unlisted under ESA and listed under MMPA (non-depleted/non-strategic) (NMFS 2023).

##### **3.3.3.1.3 Distribution**

This stock is present in the North Pacific from Russia to the Washington coast and may be present in Puget Sound (NMFS 2023a).

### **3.3.3.2 Mainland Mexico /California-Oregon-Washington (CA-OR-WA) Stock**

#### **3.3.3.2.1 Numbers**

The minimum population estimate for this stock is 3,185 (NMFS 2023b).

#### **3.3.3.2.2 Status**

This stock is listed under ESA (threatened) and under MMPA (depleted/strategic) (NMFS 2023b).

#### **3.3.3.2.3 Distribution**

This stock is present in the North Pacific from California to Southern British Columbia and may be present in Puget Sound (NMFS 2023b).

### **3.3.3.3 Central American/Southern Mexico/CA-OR-WA Stock**

#### **3.3.3.3.1 Numbers**

The minimum population estimate for this stock is 1,284 (NMFS 2023c).

#### **3.3.3.3.2 Status**

This stock is listed under ESA (endangered) and under MMPA (depleted/strategic) (NMFS 2023c).

#### **3.3.3.3.3 Distribution**

This stock is present in the North Pacific from California to Southern British Columbia and may be present in Puget Sound (NMFS 2023c).

### **3.3.4 Minke Whale**

The California-Oregon-Washington (CA-OR-WA) stock of minke whale may be found near the project site. Minke whales are low-frequency hearing range cetaceans (NMFS 2018b).

#### **3.3.4.1 Numbers**

The CA/OR/WA stock assessment report population estimate is 509 individuals (NMFS 2022b).

#### **3.3.4.2 Status**

Minke whales are not listed under the ESA and are classified as non-depleted under the MMPA.

#### **3.3.4.3 Distribution**

Minke whales are reported in Washington inland waters year-round, although few are reported in the winter (Calambokidis and Baird 1994). Minke whales are relatively common in the San Juan Islands and Strait of Juan de Fuca (especially around several of the banks in both the central and eastern Strait) but are relatively rare in Puget Sound.

### **3.3.5 Harbor Porpoise**

The Washington Inland Waters Stock of harbor porpoise may be found near the project site. The Washington Inland Waters Stock occurs in the Strait of Juan de Fuca, San Juan Island Region, and Puget Sound. Harbor porpoise are high-frequency hearing range cetaceans (NMFS 2018b).

#### **3.3.5.1 Numbers**

The minimum population estimate is for the Washington Inland Waters Stock of harbor porpoise is 8,308 (NMFS 2017b).

No harbor porpoise were observed within Puget Sound during comprehensive harbor porpoise surveys conducted in the 1990s (Osmek et al. 1994). Declines were attributed to gill-net fishing, increased vessel activity, contaminants, and competition with Dall's porpoise.

However, populations have rebounded with increased sightings in central and southern Puget Sound (WDFW 2008). Recent systematic boat surveys of the main basin indicate that at least several hundred and possibly as many as low thousands of harbor porpoise are now present. While the reasons for this recolonization are unclear, it is possible that changing conditions outside of Puget Sound, as evidenced by a tripling of the population in the adjacent waters of the Strait of Juan de Fuca and San Juan Islands since the early 1990s, and the recent higher number of harbor porpoise mortalities in coastal waters of Oregon and Washington, may have played a role in encouraging harbor porpoise to explore and shift into areas like Puget Sound (WDFW 2016).

#### **3.3.5.2 Status**

The Washington Inland Waters Stock of harbor porpoise is non-depleted under MMPA, and unlisted under the ESA.

#### **3.3.5.3 Distribution**

Harbor porpoises are common in the Strait of Juan de Fuca and south into Admiralty Inlet, especially during the winter, and are becoming more common south of Admiralty Inlet.

Little information exists on harbor porpoise movements and stock structure near the Seattle area, although it is suspected that in some areas harbor porpoises migrate (based on seasonal shifts in distribution). For instance, Hall (2004) found harbor porpoises off Canada's southern Vancouver Island to peak during late summer, while the WDFW Puget Sound Ambient Monitoring Program (PSAMP) data show peaks in Washington waters to occur during the winter (WDFW 2008).

Hall (2004) found that the frequency of sighting of harbor porpoises decreased with increasing depth beyond 150 m with the highest numbers observed at water depths ranging from 61 to 100 m. Although harbor porpoises have been spotted in deep water, they tend to remain in shallower shelf waters (<150 m) where they are most often observed in small groups of one to eight animals (Baird 2003).

### **3.3.6 Dall's Porpoise**

The California, Oregon, and Washington Stock of Dall's porpoise may be found near the project site. Dall's porpoise are high-frequency hearing range cetaceans (NMFS 2018b).

#### **3.3.6.1 Numbers**

The minimum population estimate of Dall's porpoise is 10,286 (NMFS 2022c).

#### **3.3.6.2 Status**

The California, Oregon, and Washington Stock of Dall's porpoise is non-depleted under the MMPA, and unlisted under the ESA.

#### **3.3.6.3 Distribution**

Within the inland waters of Washington and British Columbia, this species is most abundant in the Strait of Juan de Fuca east to the San Juan Islands. The most recent Washington's inland waters estimate is 900 animals (Calambokidis et al. 1997), though sightings have become rarer since then, perhaps due to competition with increasing harbor porpoise numbers. Prior to the 1940s, Dall's porpoises were not reported in Puget Sound.

Dall's porpoises are migratory and appear to have predictable seasonal movements driven by changes in oceanographic conditions (Green et al. 1992, 1993), and are most abundant in Puget Sound during the winter (Nysewander et al. 2005; WDFW 2008). Despite their migrations, Dall's porpoises may occur in all areas of inland Washington at all times of year, but with different distributions throughout Puget Sound from winter to summer. The WDFW PSAMP data show peaks in Washington waters to occur during the winter. The average winter group size is three animals (WDFW 2008).

### **3.3.1 Common Bottlenose Dolphin**

The California/Oregon/Washington offshore stock of Common bottlenose dolphin may be found near the project site. Common bottlenose dolphins are mid-frequency hearing range cetaceans (NMFS 2018b).

#### **3.3.1.1 Numbers**

The minimum population estimate for Common bottlenose dolphin is 1,255 (NMFS 2017c).

#### **3.3.1.2 Status**

The California/Oregon/Washington offshore stock of Common bottlenose dolphin is "non-depleted" under the MMPA, and "unlisted" under the ESA.

#### **3.3.1.3 Distribution**

Sightings have been documented in South and Central Puget Sound (Orca Network 2016/CRC 2017), and during the Seattle Multimodal Project monitoring (WSDOT 2022).



### **3.3.2 Pacific White-sided Dolphin**

The California/Oregon/Washington, Northern and Southern Stocks of Pacific white-sided dolphin may be found near the project site. Pacific white-sided dolphins are mid-frequency hearing range cetaceans (NMFS 2018b).

#### **3.3.2.1 Numbers**

The minimum population estimate for Pacific white-sided dolphin is 29,090 (NMFS 2022f).

#### **3.3.2.2 Status**

The California/Oregon/Washington, Northern and Southern Stocks of Pacific white-sided dolphin is “non-depleted” under the MMPA, and “unlisted” under the ESA.

#### **3.3.2.3 Distribution**

Sightings have been documented in Central Puget Sound (Orca Network 2015), and during the Seattle Multimodal Project monitoring (WSDOT 2022).

### **3.3.3 Long-Beaked Common Dolphin**

The California stock of Long-beaked common dolphin may be found near the project site. Long-beaked common dolphins are mid-frequency hearing range cetaceans (NMFS 2018b).

#### **3.3.3.1 Numbers**

The minimum population estimate for Long-beaked common dolphin is 69,636 (NMFS 2022e).

#### **3.3.3.2 Status**

The California stock of Long-beaked common dolphin is “non-depleted” under the MMPA, and “unlisted” under the ESA.

#### **3.3.3.3 Distribution**

Sightings have been documented in South and Central Puget Sound (Orca Network 2016/CRC 2017), and during the Seattle Multimodal Project monitoring (WSDOT 2022).

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## 4.0 Status and Distribution of Affected Species or Stocks

*A description of the status, distribution, and seasonal distribution (when applicable) of the affected species or stocks of marine mammals likely to be affected by such activities.*

This section has been combined with Section 3.0.

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## 5.0 Type of Incidental Take Authorization Requested

*The type of incidental taking authorization that is being requested (i.e., takes by harassment only, takes by harassment, injury and/or death), and the method of incidental taking.*

Harassment is the primary means of take expected to result from these activities. Except with respect to certain activities not pertinent here, the MMPA defines “harassment” as: any act of pursuit, torment, or annoyance which (i) has the potential to injure a marine mammal or marine mammal stock in the wild [Level A harassment]; or (ii) has the potential to disturb a marine mammal or marine mammal stock in the wild by causing disruption of behavioral patterns, including, but not limited to, migration, breathing, nursing, breeding, feeding, or sheltering [Level B harassment].

As described previously in the Effects section, Level B Harassment is expected to occur and is proposed to be authorized in the numbers identified below. The death of a marine mammal is also a type of incidental take. However, no mortality is anticipated or proposed to be authorized to result from this activity.

### 5.1 Incidental Take Authorization Request

Under Section 101 (a)(5)(D) of the MMPA, WSF requests an IHA from August 1, 2024 through March 31, 2025 for Level B take of 11 species of marine mammals described in this application.

The scheduled pile work is planned to be completed by February 15, 2025. But in case of a project delay, an extension of the work window (after consultation with NMFS and USFW) may be possible. Having the IHA active through the end of March would allow IHA coverage during any extension.

### 5.2 Method of Incidental Taking

The method of incidental take is Level B behavior take during active pile driving or removal activity.

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## 6.0 Number of Marine Mammals that May Be Affected

*By age, sex, and reproductive condition (if possible), the number of marine mammals (by species) that may be taken by each type of taking identified in [Section 5], and the number of times such takings by each type of taking are likely to occur.*

This section summarizes potential incidental take of marine mammals during the Seattle Slip 3 VTS project. Section 6.2 describes the methods used to calculate the estimated zones and Section 6.3 describes the potential incidental take for each marine mammal species. Section 6.2.6 provides the number of marine mammals by species for which take authorization is requested.

Due to in-water noise from impact pile driving, and vibratory pile driving and removal this project will incidentally take by Level B behavior harassment small numbers of marine mammals.

With the exception of harbor seals and California sea lions, it is anticipated that all of the marine mammals that enter a Level B behavior harassment ZOI will be exposed to pile driving noise only briefly as they are transiting the area. Only harbor seals and California sea lions are expected to forage and haul out in the Seattle project area with any frequency and could be exposed multiple times during the project.

### 6.1 Estimated Duration of Pile Driving

- The total worst-case duration for pile installation and removal is 10 days (Table 6-1).
- 

**Table 6-1 Durations**

Method	Pile type	Pile size (inch)	Pile number	Piles /day	Minutes /pile	Duration (Days)
Vibratory drive	Steel	78	2	1	60	2
Vibratory drive	Steel	30	1	1	60	1
Vibratory drive	Steel (temporary)	24	12	3	30	4
Impact drive	Steel (temporary)	24	12	3	30	4
<b>Subtotal</b>						<b>11</b>
Vibratory remove	Steel (temporary)	24	12	3	30	4
Vibratory remove	Steel	14	16	4	30	4
<b>Subtotal</b>						<b>8</b>
<b>Total</b>						<b>19</b>

## 6.2 Estimated Zones of Influence/Zones of Exclusion

Distances to ZOIs and ZOE are provided in Tables 6-2 and 6-3. Monitoring ZOE/Exclusion Zones have been conservatively simplified to make PSO monitoring easier to implement during construction. SRKW and humpback whale exclusion is established at the Level B harassment ZOI.

**Table 6-2 Zone of Influence summary**

Pile type, size & pile driving method	Level A Injury zone (m)					Level B ZOI (m)
	LF cetacean	MF cetacean	HF cetacean	Phocid	Otariid	
Vibratory drive, 78" steel pile, 1 pile/day, 60 min/pile	50.2	4.5	74.3	30.5	2.1	15,410*
Vibratory drive, 30" steel pile, 1 pile/day, 60 min/pile	50.2	4.5	74.3	30.5	2.1	15,410
Vibratory drive/removal 24" steel pile, 3 piles/day, 30 min/pile	65.8	5.8	97.3	40.0	2.8	15,410
Vibratory removal 14" steel pile, 4 piles/day, 30 min/pile	3.2	0.3	4.7	1.9	0.1	1,585
Impact drive (proof) 24" steel piles, 3 piles/day, 350 strikes/pile	75.9	2.7	90.4	40.6	3.0	736

\*Land is reached at a maximum of 15,410 m (15.4 km/9.6 miles)

**Table 6-3 Zones of Exclusion**

Pile type, size & pile driving method	Exclusion Zone (m)					SRKW/ Humpback Exclusion (m)
	LF cetacean	MF cetacean	HF cetacean	Phocid	Otariid	
Vibratory drive, 78" steel pile, 1 piles/day, 60 min/pile	100	100	100	50	50	15,410*
Vibratory drive, 30" steel pile, 1 pile/day, 60 min/pile	100	100	100	50	50	15,410
Vibratory drive/removal 24" steel pile, 3 piles/day, 30 min/pile	100	100	100	50	50	15,410
Vibratory removal 14" steel pile, 4 piles/day, 30 min/pile	50	50	50	50	50	1,600
Impact drive (proof) 24" steel piles, 3 piles/day, 350 strikes/pile	100	100	100	50	50	750

\*Land is reached at a maximum of 15,410 m (15.4 km/9.6 miles)

### 6.3 Airborne Zones of Influence

NMFS has established an in-air noise disturbance threshold of 90 dB<sub>rms</sub> (unweighted) for harbor seals, and 100 dB<sub>rms</sub> (unweighted) for all other pinnipeds (sea lions).

- Noise generated during vibratory installation and/or removal (97 dB<sub>rms</sub> @ 15m/50 ft. will reach the harbor seal threshold at approximately 34 m/112 ft. and is below the other pinnipeds threshold. This distance is smaller than the 50 m pinniped shutdown zone, so no in-air harassment of harbor seals will take place.
- Noise generated during impact driving (111 dB<sub>rms</sub> @ 15 m/50 ft.) will reach the harbor seal threshold at approximately 171 m/561 ft. (Figure 1-9), and the other pinnipeds threshold at approximately 54 m/178 ft.

The nearest documented harbor seal haulout to the Seattle Ferry Terminal is 10.6 km/6.6 miles west on Blakely Rocks, though harbor seals also make use of docks, buoys and beaches in the area. The nearest documented California sea lion haulout sites are 3 km/2 miles southwest of the



Terminal, although sea lions also make use of docks and buoys in the area. Pinnipeds may experience noise above the thresholds when passing through the noise zones noted above.

During vibratory driving/removal pinniped in-air take will be avoided due to the 50 m exclusion zone. During impact driving, harbor seals passing through the 50-964 m zone may experience noise levels above the threshold, triggering take. Other pinnipeds will not experience noise above the threshold due to the 50 m exclusion zone. Airborne take will be accounted for within the Level B underwater take estimates because animals cannot be taken more than once in a day.

## 6.4 Estimated Takes

Incidental take is estimated by the likelihood of a marine mammal being present within a ZOI during active pile driving or removal, based on sightings data and best professional judgment. For uncommon species, a conservative minimum take of 5 animals will be requested. No take for Southern Resident killer whale or Humpback whale is requested. Table 6-5 summarizes sightings data used for take estimates.

**Table 6-4 Marine Mammal Sightings**

Species	Sightings Total <sup>1</sup>	Average Sightings/Day (377 days)	Maximum One-day Sightings <sup>1</sup>	Take Requested
Harbor Seal	2,271	6.0	32	Yes
Northern Elephant Seal	1	0.003	1	Yes
California Sea Lion	3,669	9.7	29	Yes
Steller Sea Lion	112	0.3	10	Yes
Unidentified pinniped	121	N/A	N/A	N/A
Killer Whale Southern Resident	170	0.5	26	<b>No</b>
Killer Whale Transient	79	0.2	20	Yes
Gray Whale	5	0.01	2	Yes
Humpback whale	8	0.02	1	<b>No</b>
Minke Whale	3	0.008	1	Yes
Unidentified large whale	2	N/A	1	N/A
Unidentified small whale	10	N/A	N/A	N/A
Harbor Porpoise	655	1.7	72	Yes
Dall's Porpoise	8	0.02	5	Yes

Species	Sightings Total <sup>1</sup>	Average Sightings/Day (377 days)	Maximum One-day Sightings <sup>1</sup>	Take Requested
Common Bottlenose Dolphin	6	0.02	2	Yes
Pacific White-sided Dolphin	2	0.005	2	Yes
Long-beaked Common Dolphin	0	N/A	0	Yes
Unidentified dolphin/porpoise	46	N/A	6	N/A

<sup>1</sup>WSDOT 2022

### 6.4.1 Level B Take

In-water noise will be present for an estimated 19 days. Based on best professional judgement and project specific observations, the take estimates are:

- Harbor Seal –Maximum one-day sightings were 32 individuals. Conservatively assuming that 32 individuals may be present in the vibratory ZOIs during 19 days of vibratory pile noise, it is assumed that 608 animals may be exposed.
- Northern Elephant Seal – Maximum one-day sightings were one individual. Conservatively assuming that one individual may be present in the ZOIs during 19 days of pile noise, it is assumed that 19 animals may be exposed.
- California Sea Lion - Maximum one-day sightings were 29 individuals. Conservatively assuming that 29 individuals may be present in the ZOIs during 19 days of pile noise, it is assumed that 551 animals may be exposed.
- Steller Sea Lion - Maximum one-day sightings were 10 individuals. Conservatively assuming that 10 individuals may be present in the ZOIs during 19 days of pile noise, it is assumed that 190 animals may be exposed.
- Transient Killer Whale - Maximum one-day sightings were 20 individuals. Conservatively assuming that 20 individuals may be present in the ZOIs during 19 days of pile noise, it is assumed that 380 animals may be exposed.
- Gray Whale - Maximum one-day sightings were 2 individuals. Conservatively assuming that 2 individuals may be present in the ZOIs during 19 days of pile noise, it is assumed that 38 animals may be exposed.
- Minke whale – Maximum one-day sightings was 1 individual. Conservatively assuming that 1 individual may be present in the ZOIs during 19 days of pile noise, it is assumed that 19 animals may be exposed.

- Harbor Porpoise - Maximum one-day sightings were 72 individuals. Conservatively assuming that 72 individuals may be present in the ZOIs during 19 days of pile noise, it is assumed that 1,368 animals may be exposed.
- Dall's Porpoise - Maximum one-day sightings were 5 individuals. Conservatively assuming that 5 individuals may be present in the ZOIs during 19 days of pile noise, it is assumed that 95 animals may be exposed.
- Common Bottlenose Dolphin – Maximum one-day sightings were 2 individuals. Conservatively assuming that 2 individuals may be present in the ZOIs during 19 days of pile noise, it is assumed that 38 individuals may be exposed.
- Pacific White-sided Dolphin – Maximum one-day sightings were 2 individuals. Conservatively assuming that 2 individuals may be present in the ZOIs during 19 days of pile noise, it is assumed that 38 individuals may be exposed.
- Long-beaked Common Dolphin – Zero confirmed Long-beaked common dolphins were observed during the project. However, 5 unidentified dolphins were tentatively identified as common dolphins (maximum one-day sightings = 2). Due to the difficulty in identifying common from Long-beaked dolphins, it is assumed that they may have been Long-beaked. Conservatively assuming that 2 individuals may be present in the ZOIs during 19 days of pile noise, it is assumed that 38 individuals may be exposed.

## 6.4.2 Summary of Estimated Takes

A summary of estimated marine mammal takes is listed in Table 6-6.

**Table 6-5 Estimated Take Levels**

<b>Species</b>	<b>Estimated Level B Take</b>	<b>Estimated Level A Take</b>	<b>Estimated Total Take</b>
Pacific Harbor Seal	608	0	608
Northern Elephant Seal	19	0	19
California Sea Lion	551	0	551
Steller Sea Lion	190	0	190
Killer Whale Southern Resident	0	0	0
Killer Whale Transient	380	0	380
Gray Whale	38	0	38
Humpback Whale (Hawaii)	0	0	0
Humpback Whale (Mainland Mexico/CA-OR-WA)	0	0	0
Humpback Whale (Central American/Southern Mexico/CA-OR-WA)	0	0	0
Minke Whale	19	0	19
Harbor Porpoise	1,368	0	1,368
Dall's Porpoise	95	0	95
Common Bottlenose Dolphin	38	0	38
Pacific White-sided Dolphin	38	0	38
Long-beaked Common Dolphin	38	0	38

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## 7.0 Anticipated Impact on Species or Stocks

*The anticipated impact of the activity upon the species or stock of marine mammals.*

WSF is requesting authorization for Level B behavior harassment take of the species listed in Table 7-1 (except for Southern Resident Killer Whale). These numbers in relation to the overall stock size of each species are summarized in Table 7-1.

For pinnipeds, any incidental takes will likely be multiple takes of individuals, rather than single takes of unique individuals. The calculations below assume takes of individual animals, instead of repeated takes of a smaller number of individuals; therefore, the stock take percentage calculations are very conservative.

If incidental takes occur, it is expected to only result in short-term changes in behavior and potential temporary hearing threshold shift. These takes would be unlikely to have any impact on stock recruitment or survival and therefore, would have a negligible impact on the stocks of these species.

For Transient Killer whale, the take request of 110% of the stock is a worst-case scenario. WSF does not anticipate that 110% of the stock will actually be taken. Instead, there may be repeated takes of the same individuals over the duration of in-water work. Also, it is unlikely the entire stock of Transient Killer Whales would occur in the ensonified construction area. Only small groups are expected. Therefore, less than  $\frac{1}{3}$  of the stock is expected to be incidentally taken.

In addition, monitoring and shutdown to avoid harassment of SRKW will likely result in reduced take of Transient killer whales. The shutdown procedures for SRKW could result in stopping construction for observations of killer whales, until the PSOs confirm that SRKWs are not present. During this time, the killer whales could leave the level B harassment area before construction restarts, which would reduce total take numbers for Transients.

**Table 7-1 Level B Behavior Harassment Take Request Percent of Total Stock**

Species	Stock Size	Take Request	Take Request % of Stock
Pacific Harbor Seal	11,036	608	5.51
Northern Elephant Seal	85,369	19	0.02
California Sea Lion	233,515	551	0.24
Steller Sea Lion	43,201	190	0.23
Killer Whale, Southern Resident	75	0	0
Killer Whale, Transient	346	380	110.0
Gray Whale	25,849	38	0.15
Humpback Whale (Hawaii)	7,265	0	0
Humpback Whale (Mainland Mexico/CA-OR-WA)	3,185	0	0
Humpback Whale (Central American/Southern Mexico/CA-OR-WA)	1,284	0	0
Minke Whale	509	19	3.7
Harbor Porpoise	8,308	1,368	16.5
Dall's Porpoise	10,286	38	0.37
Common Bottlenose Dolphin	1,255	38	3.0
Pacific White-sided Dolphin	29,090	38	0.13
Long-beaked Common Dolphin	69,636	38	0.05

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## 8.0 Anticipated Impact on Subsistence

*The anticipated impact of the activity on the availability of the species or stocks of marine mammals for subsistence uses.*

### 8.1 Subsistence Harvests by Northwest Treaty Indian Tribes

Historically, Pacific Northwest Native American tribes were known to hunt several species of marine mammals including harbor seals, Steller sea lions, northern fur seals, gray whales and humpback whales. More recently, several Pacific Northwest Native American tribes have promulgated tribal regulations allowing tribal members to exercise treaty rights for subsistence harvest of harbor seals and California sea lions (Carretta et al. 2007a).

Currently, there are no authorized ceremonial and/or subsistence hunts for marine mammals in Puget Sound or the San Juan Islands (Norberg 2007) except for some coastal tribes who may allow a small number of directed take for subsistence purposes.

#### 8.1.1 Harbor Seals

Tribal subsistence takes of this stock may occur, but no data on recent takes are available (NMFS 2014a). No impacts on the availability of the species or stocks to the Pacific Northwest treaty tribes are expected because of the proposed project.

#### 8.1.2 California Sea Lions

Tribal subsistence takes of this stock may occur, but no data on recent takes are available (NMFS 2015b). No impacts on the availability of the species or stock to the Pacific Northwest treaty tribes are expected because of the proposed project.

#### 8.1.3 Gray Whales

The Makah Indian Tribe (Makah) has requested authorization to hunt eastern North Pacific gray whales. The right to take whales at usual and accustomed grounds is a Makah tradition secured by the 1855 Treaty of Neah Bay.

In 1999, the Makah Indian Tribe hunted and landed the first gray whale since the tribe stopped whaling in 1920's (whaling was stopped due to the reduced gray whale population from commercial hunting). The 1999 hunt was authorized under an International Whaling Commission allocation of 20 whales. Court challenges stopped continued hunting after the initial hunt.

On February 14, 2005, NOAA Fisheries received a request from the Makah for a waiver of the MMPA's take moratorium. On November 17, 2023, the EPA announced the availability of a Final Environmental Impact Statement under NEPA addressing the waiver request (NMFS 2023). However, any future hunts by the Makah would occur along the outer coast of Washington, not in the Puget Sound area. Therefore, the proposed activities would not interfere with any future hunt.

## 9.0 Anticipated Impact on Habitat

*The anticipated impact of the activity upon the habitat of the marine mammal populations, and the likelihood of restoration of the affected habitat.*

### 9.1 Introduction

Construction activities will have temporary impacts on marine mammal habitat by increased in-water and in-air sound pressure levels from pile driving and removal. Other potential temporary impacts are water quality (increases in turbidity levels) and prey species distribution. Best management practices (BMPs) and minimization practices used by WSF to minimize potential environmental effects from project activities are outlined in Section 11 - Mitigation Measures.

### 9.2 In-air Noise Disturbance to Haul Outs

Disturbance of pinnipeds hauled out near the project, and surfacing when swimming within the threshold distances is possible.

Noise generated during vibratory installation and/or removal (97 dB<sub>rms</sub> @ 15 m/50 ft. (WSDOT 2016) will reach the harbor seal threshold at approximately 4.6 m/15 ft. and is below the other pinnipeds threshold.

Noise generated during impact driving (111 dB<sub>rms</sub> @ 15 m/50 ft.) will reach the harbor seal threshold at approximately 964 m/3,162 ft., and the other pinnipeds threshold at approximately 21 m/68 ft.

The nearest documented harbor seal haulout to the Seattle Ferry Terminal is 10.6 km/6.6 miles west on Blakely Rocks, though harbor seals also make use of docks, buoys and beaches in the area. The nearest documented California sea lion haulout sites are 3 km/2 miles southwest of the Terminal, although sea lions also make use of docks and buoys in the area.

### **9.3 Underwater Noise Disturbance**

Distances to the Level A/B acoustical harassment thresholds are described in Section 1.7.

There are short-term and long-term effects from noise exposure that may occur to marine mammals, including impaired foraging efficiency and its potential effects on movements of prey, harmful physiological conditions, energetic expenditures and temporary or permanent hearing threshold shifts due to chronic stress from noise (NMFS 2018b). Most of the research on underwater noise impacts on whales is associated with vessel and navy sonar disturbances and does not often address impacts from pile driving. Because whale occurrence is occasional near the project site, in-water noise impacts are localized and of short duration, any impact on individual cetaceans will be limited.

Pile removal and driving will expose marine mammals to potential Level B harassment. The Zones of Exclusion (ZOE) will be monitored, and work ceased if any cetacean or pinniped approaches. Because there are no documented haulouts within the immediate project area, in-air pinniped disturbance will be limited to individuals transiting the construction area or hauled out on nearby docks.

### **9.4 Water and Sediment Quality**

Short-term turbidity is a water quality effect of most in-water work, including pile driving and removal. WSF must comply with state water quality standards during these operations by limiting the extent of turbidity in the immediate project area.

Roni and Weitkamp (1996) monitored water quality parameters during a pier replacement project in Manchester, Washington. The study measured water quality before, during and after pile removal and driving. The study found that construction activity at the site had “little or no effect on dissolved oxygen, water temperature and salinity”, and turbidity (measured in nephelometric turbidity units [NTU]) at all depths nearest the construction activity was typically less than 1 NTU higher than stations farther from the project area throughout construction.

Similar results were recorded during pile removal operations at two WSF ferry facilities. At the Friday Harbor Ferry Terminal, localized turbidity levels within the regulatory compliance radius of 150 feet (from three timber pile removal events) were generally less than 0.5 NTU higher than background levels and never exceeded 1 NTU. At the Eagle Harbor Maintenance Facility, within 150 feet, local turbidity levels (from removal of timber and steel piles) did not exceed 0.2 NTU above background levels (WSF 2014). In general, turbidity associated with pile installation is localized to about a 25-foot radius around the pile (Everitt et al. 1980).

Cetaceans are not expected to be close enough to the Seattle Ferry Terminal to experience turbidity, and any pinnipeds will be transiting the terminal area and could avoid localized areas of turbidity. Therefore, the impact from increased turbidity levels is expected to be discountable to marine mammals.

## 9.5 Passage Obstructions

Pile driving and removal at the Seattle Ferry Terminal will not obstruct movements of marine mammals. Pile work at Seattle will occur within 500 ft. of the shoreline leaving 11 km/7 miles of Puget Sound for marine mammals to pass. Construction barges will be used during the project. The barges will be anchored and/or spudded. No dynamic positioning system (DPS) will be used. In a previous concurrence letter for the Vashon Island Dolphin Replacement Project (NMFS 2008b), NMFS stated the following:

Vessels associated with any project are primarily tug/barges, which are slow moving, follow a predictable course, do not target whales, and should be easily detected by whales when in transit. Vessel strikes are extremely unlikely and any potential encounters with Southern Residents [killer whales] are expected to be sporadic and transitory in nature.

## 9.6 Conclusions Regarding Impacts on Habitat

The most likely effects on marine mammal habitat from the proposed project are temporary, short duration noise and water quality effects. The direct loss of habitat available to marine mammals during construction due to noise, water quality impacts and construction activity is expected to be minimal. All cetacean species using habitat near the terminal will be transiting the terminal area.

Any adverse effects on prey species during project construction will be short term. Given the large numbers of fish and other prey species in Puget Sound, the short-term nature of effects on fish species and the mitigation measures to protect fish during construction (use of a vibratory hammer when possible, use of a bubble curtain during steel pile impact pile driving, BMPs, conducting work within the approved in-water work window), the Seattle project is not expected to have measurable effects on the distribution or abundance of potential marine mammal prey species.

Passage is not expected to be obstructed because of the proposed project. Any temporary obstruction due to barge placement will be localized and limited in duration.

## 10.0 Anticipated Impact of Loss or Modification of Habitat

*The anticipated impact of the loss or modification of the habitat on the marine mammal populations involved.*

The proposed project will not result in a significant permanent loss or modification of habitat for marine mammals or their food sources. The most likely effects on marine mammal habitat for the proposed project are temporary, short duration in-water noise, temporary prey (fish) disturbance, and localized, temporary water quality effects. The direct loss of habitat available to marine mammals during the project is expected to be minimal. These temporary impacts have been discussed in detail in Section 9.0, Anticipated Impact on Habitat.

## 11.0 Mitigation Measures

*The availability and feasibility (economic and technological) of equipment, methods, and manner of conducting such activity or other means of effecting the least practicable adverse impact upon the affected species or stocks, their habitat, and on their availability for subsistence uses, paying particular attention to rookeries, mating grounds, and areas of similar significance.*

WSF activities are subject to federal, state and local permit regulations. WSF has developed and routinely uses the best guidance available (e.g., BMPs and mitigation measures) to avoid and minimize (to the greatest extent possible) impacts on the environment, ESA species, designated critical habitats and species protected under the MMPA.

The mitigation measures will be employed during all pile driving and removal, and other construction activities during the project. The language for each mitigation measure is included in the Contract Plans and Specifications and must be agreed upon by the contractor prior to any construction activities. Upon signing the contract, it becomes a legal agreement between the Contractor and WSF. Failure to follow the prescribed mitigation measures is a contract violation.

General mitigation measures used for all construction practices are listed first, followed by specific mitigation measures for pile related activities.

### 11.1 All Construction Activities

WSF performs all construction in accordance with the current WSDOT Standard Specifications for Road, Bridge, and Municipal Construction. Special Provisions contained in preservation and repair contracts are developed accordingly to address project specific site conditions, and by permitted work methods, and materials, and are used in coordination with the Standard Specifications. Mitigation measures include:

- All construction equipment will comply with applicable equipment noise standards of the U.S. Environmental Protection Agency.
- AWSF inspector will be on site during construction. The role of the inspector is to ensure contract compliance. The inspector and the contractor will have a copy of the Contract Plans and Specifications on site and will be aware of all requirements. The inspector will have knowledge of the environmental provisions and compliance of the project.
- WSF will obtain Hydraulic Project Approval (HPA) from WDFW as appropriate and the contractor will follow the conditions of the HPA. HPA requirements will assumed as part of the contract document.
- The contractor shall be responsible for the preparation of a Spill Prevention, Control and Countermeasures (SPCC) plan to be used for the duration of the project:
- The SPCC plan is submitted to the Project Engineer prior to the commencement of any construction activities. The contractor maintains a copy of the SPCC plan, along with any updates, at the work site.

- The SPCC plan shall identify construction planning elements and recognize potential spill sources at the site. The SPCC plan shall outline BMPs, responsive actions in the event of a spill or release and identify notification and reporting procedures. The SPCC plan shall also outline contractor management elements such as personnel responsibilities, project site security, site inspections and training.
- The SPCC will outline what measures shall be taken by the contractor to prevent the release or spread of hazardous materials, either found on site and encountered during construction but not identified in contract documents, or any hazardous materials that the contractor stores, uses, or generates on the construction site during construction activities. These items include, but are not limited to gasoline, oils and chemicals. Hazardous materials are defined in Revised Code of Washington (RCW) 70.105.010 under “hazardous substance.”
- The contractor shall maintain, at the job site, the applicable spill response equipment and material designated in the SPCC plan.
- The contractor shall regularly check fuel hoses, oil drums, oil or fuel transfers valves, fittings, etc. for leaks, and shall maintain and store materials properly to prevent spills.
- No petroleum products, chemicals or other toxic or deleterious materials shall be allowed to enter surface waters.
- WSF will comply with water quality restrictions imposed by the Washington State Department of Ecology (Ecology) (Chapter 173-201A WAC), which specify a mixing zone beyond which water quality standards cannot be exceeded. Compliance with Ecology’s standards is intended to ensure that fish and aquatic life are being protected to the extent feasible and practicable.
- Wash water resulting from washdown of equipment or work areas shall be contained for proper disposal and shall not be discharged into state waters unless authorized through a state discharge permit.
- Equipment that enters the surface water shall be maintained to prevent any visible sheen from petroleum products appearing on the water.
- There shall be no discharge of oil, fuels, or chemicals to surface waters, or onto land where there is a potential for reentry into surface waters.
- No cleaning solvents or chemicals used for tools or equipment cleaning shall be discharged to ground or surface waters.
- The contractor shall regularly check fuel hoses, oil drums, oil or fuel transfer valves, fittings, etc. for leaks, and shall maintain and store materials properly to prevent spills.

## 11.2 Timing Windows

Timing restrictions are used to avoid in-water work when ESA-listed salmonids are most likely to be present. The combined work window for in-water work for the Seattle Ferry Terminal is July 16 through February 15 (extensions are possible). Actual construction activities are planned to take place between August 1, 2024 and February 15, 2025.

### 11.3 Pile Driving BMPs

BMPs to be employed during pile installation include:

- The vibratory hammer method will be used to the extent possible to drive steel piles to minimize noise levels.
- A bubble curtain or other noise attenuation device will be employed during impact installation or proofing of steel piles unless the piles are driven in the dry.
- Soft start techniques will be implemented when impact pile driving. Soft start requires contractors to provide an initial set of three strikes at reduced energy, followed by a 30-second waiting period, then two subsequent reduced-energy strike sets. A soft start must be implemented at the start of each day's impact pile driving and at any time following cessation of impact pile driving for a period of 30 minutes or longer.
- Marine mammal monitoring during vibratory and impact pile driving removal will be implemented (see Section 13, Marine Mammal Monitoring).
- Creosote-treated timber piling shall be replaced with non-creosote-treated piling.
- The contractor will be required to retrieve any floating debris generated during construction. Any debris in the containment boom will be removed by the end of the workday or when the boom is removed, whichever occurs first. Retrieved debris will be disposed of at an upland disposal site.
- Steel, plastic/steel, concrete, or ACZA-treated wood piling will be used. No creosote-treated timber piling will be used.

### 11.4 Pile Removal BMPs

The following pile removal mitigation measures are proposed by WSF to reduce impacts on marine mammals to the lowest extent practicable. For WSF's Construction Minimization Measures, see WSF Biological Assessment Reference Section 2.3. Additional BMPs that will be incorporated into the project include:

- The vibratory hammer method will be used to remove timber piles to minimize noise levels.
- Hydraulic water jets will not be used to remove piles.
- Marine mammal monitoring during vibratory pile removal will be implemented (see Section 13, Marine Mammal Monitoring).
- The crane operator will be instructed to remove piles slowly to minimize turbidity in the water as well as sediment disturbance.
- The operator will "wake up" the pile to break the bond with surrounding sediment by vibrating the pile slightly prior to removal. Waking up the pile avoids pulling out large blocks of sediment, which could cause the pile to break apart during the removal process, and usually results in little to no sediment attached to the pile during withdrawal.

- Extraction equipment will be kept out of the water, above the water line, to prevent creosote release into the water that could occur if the pile is pinched by extraction equipment below the water line.
- Piling will not be broken off intentionally by twisting, bending, or other deformation, to minimize any potential release of creosote into the water column.
- Treated wood will be contained during and after removal to preclude sediments and contaminated materials from entering the aquatic environment.
- The work surface on the barge deck or pier will include a containment basin for pile and any sediment removed during pulling. The basin will be constructed of durable plastic sheeting with sidewalls supported by hay bales or a support structure to contain all sediment. The containment basin shall be removed and disposed of in accordance with applicable federal and state regulations.
- The work surface shall be cleaned by properly disposing of sediment or other residues along with cut-off piling.
- Upon removal from the substrate, the pile shall be moved immediately from the water into the containment basin. The pile shall not be shaken, hosed-off, stripped or scraped off, left hanging to drip or any other action intended to clean or remove adhering material from the pile.
- Holes left when removing piling will be filled with clean sand or gravel. Sand or gravel used as fill material will be obtained from a commercial source that is free of contaminants.
- During removal of creosote-treated piles, containment booms and absorbent booms (or other oil-absorbent fabric) will be placed around the perimeter of the work area to capture wood debris, oil, and other materials that could inadvertently be released into marine waters. All accumulated debris will be collected daily and disposed of at an approved upland site.
- Removed creosote-treated piles will be disposed of in a manner that precludes their further use. Piles will be cut into manageable lengths (four feet or less) for transport and disposal in an approved upland location that meets the liner and leachate standards contained in the Washington Administrative Code (WAC), Chapter 173-304, Minimum Functional Standards. No reuse of treated wood will occur.
- Water quality will be monitored during pile removal. Work barges and dredged material disposal barges will not be allowed to ground out or rest on the substrate or be over or within 25 feet of vegetated shallows (except where such vegetation is limited to state-designated noxious weeds).
- Barges will not be anchored over vegetated shallows for more than 24 hours.
- Demolition and construction materials shall not be stored where high tides, wave action, or upland runoff can cause materials to enter surface waters.



## 11.5 Exclusion Zones

WSF will establish Level A exclusion zones for all marine mammals (Table 11-1).

**Table 11-1 Exclusion Zones**

Pile type, size & pile driving method	Exclusion Zone (m)					SRKW/ Humpback Exclusion (m)
	LF cetacean	MF cetacean	HF cetacean	Phocid	Otariid	
Vibratory drive, 78" steel pile, 1 piles/day, 60 min/pile	100	100	100	50	50	15,410*
Vibratory drive, 30" steel pile, 1 pile/day, 60 min/pile	100	100	100	50	50	15,410
Vibratory drive/removal 24" steel pile, 3 piles/day, 30 min/pile	100	100	100	50	50	15,410
Vibratory removal 14" steel pile, 4 piles/day, 30 min/pile	50	50	50	50	50	1,600
Impact drive (proof) 24" steel piles, 3 piles/day, 350 strikes/pile	100	100	100	50	50	750

\*Land is reached at a maximum of 15,410 m (15.4 km/9.6 miles)

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## 12.0 Arctic Subsistence Uses, Plan of Cooperation

*Where the proposed activity would take place in or near a traditional Arctic subsistence hunting area and/or may affect the availability of a species or stock of marine mammal for Arctic subsistence uses, the applicant must submit either a plan of cooperation or information that identifies what measures have been taken and/or will be taken to minimize any adverse effects on the availability of marine mammals for subsistence uses. A plan must include the following:*

- (i) A statement that the applicant has notified and provided the affected subsistence community with a draft plan of cooperation;*
- (ii) A schedule for meeting with the affected subsistence communities to discuss proposed activities and to resolve potential conflicts regarding any aspects of either the operation or the plan of cooperation;*
- (iii) A description of what measures the applicant has taken an/or will take to ensure that proposed activities will not interfere with subsistence whaling or sealing; and*
- (iv) What plans the applicant has to continue to meet with the affected communities, both prior to and while conducting activity, to resolve conflicts and to notify the communities of any changes in the operation.*

This section is not applicable. The proposed activities will take place in Washington State, specifically in Puget Sound. No activities will take place in or near a traditional Arctic subsistence hunting area.

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## 13.0 Monitoring and Reporting Plan

*The suggested means of accomplishing the necessary monitoring and reporting that will result in increased knowledge of the species, the level of taking or impacts on populations of marine mammals that are expected to be present while conducting activities and suggested means of minimizing burdens by coordinating such reporting requirements with other schemes already applicable to persons conducting such activity. Monitoring plans should include a description of the survey techniques that would be used to determine the movement and activity of marine mammals near the activity site(s) including migration and other habitat uses, such as feeding.*

### 13.1 Coordination

WSF will conduct briefings with the construction supervisors and the crew, and marine mammal observer(s) prior to the start of pier removal to discuss marine mammal monitoring protocol and requirement to halt work.

Prior to starting any pile driving or removal activity, the Orca Network will be contacted to find out the location of the nearest marine mammal sightings. Daily sightings information can be found on the Orca Network Twitter site (<https://twitter.com/orcanetwork>), which will be checked several times a day.

The Orca Sightings Network consists of a list of over 600 (and growing) residents, scientists, and government agency personnel in the U.S. and Canada. Sightings are called or emailed into the Orca Network and immediately distributed to other sighting networks including: the Northwest Fisheries Science Center of NOAA Fisheries, the Center for Whale Research, Cascadia Research, the Whale Museum Hotline and the British Columbia Sightings Network.

‘Sightings’ information collected by the Orca Network includes detection by hydrophone. The SeaSound Remote Sensing Network is a system of interconnected hydrophones installed in the marine environment of Haro Strait (west side of San Juan Island) to study orca communication, in-water noise, bottomfish ecology and local climatic conditions. A hydrophone at the Port Townsend Marine Science Center measures average in-water sound levels and automatically detects unusual sounds. These passive acoustic devices allow researchers to hear when different marine mammals come into the region. This acoustic network, combined with the volunteer (incidental) visual sighting network allows researchers to document presence and location of various marine mammal species.

WSF also participates in the Whale Report Alert System (WRAS/[WhaleReport Alert System - Ocean Wise](#)). In October 2018, the Ocean Wise Sightings Network (formerly the B.C. Cetacean Sightings Network) launched an alert system that broadcasts details of whale presence to large commercial vessels. Information on whale presence is obtained from real-time observations reported to the Ocean Wise Sightings Network via the WhaleReport app. The alerts inform shipmasters and pilots of cetacean occurrence in their vicinity. This awareness better enables vessels to undertake adaptive mitigation measures, such as slowing down or altering course in the presence of cetaceans, to reduce the risk of collision and disturbance.

All WSF ferry vessel crews have been trained in the use of WRAS, and input new sightings of cetaceans that are available to other vessels and to the lead WSF marine mammal monitor on the

project. The lead WSF monitor will check the WRAS sightings regularly during the day to be aware of cetaceans approaching the ZOIs.

With this level of coordination in the region of activity, WSF will be able to get real-time information on the presence or absence of cetaceans before starting any pile removal or driving.

### **13.2 Visual Monitoring**

WSF has developed a monitoring plan (Appendix D) for collecting sighting data for each marine mammal species observed during pile driving and removal. Qualified marine mammal observers will be present on-site during pile driving and removal.

### **13.3 Reporting Plan**

WSF will provide NMFS with a draft monitoring report within 90 days of the conclusion of monitoring. This report will detail the monitoring protocol, summarize the data recorded during monitoring and estimate the number of marine mammals that may have been harassed.

If comments are received from the Regional Administrator on the draft report, a final report will be submitted to NMFS within 30 days thereafter. If no comments are received from NMFS, the draft report will be the final report.

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## **14.0 Coordinating Research to Reduce and Evaluate Incidental Take**

*Suggested means of learning of, encouraging, and coordinating research opportunities, plans, and activities relating to reducing such incidental taking and evaluating its effects.*

In-water noise generated by pile removal and driving at the project site is the primary issue of concern relative to local marine mammals. WSF has conducted research on sound propagation from vibratory and impact hammers, and plans on continuing that research to provide data and new technologies for future ferry terminal projects. Impact noise will be monitored during the project, in order to collect further data.



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